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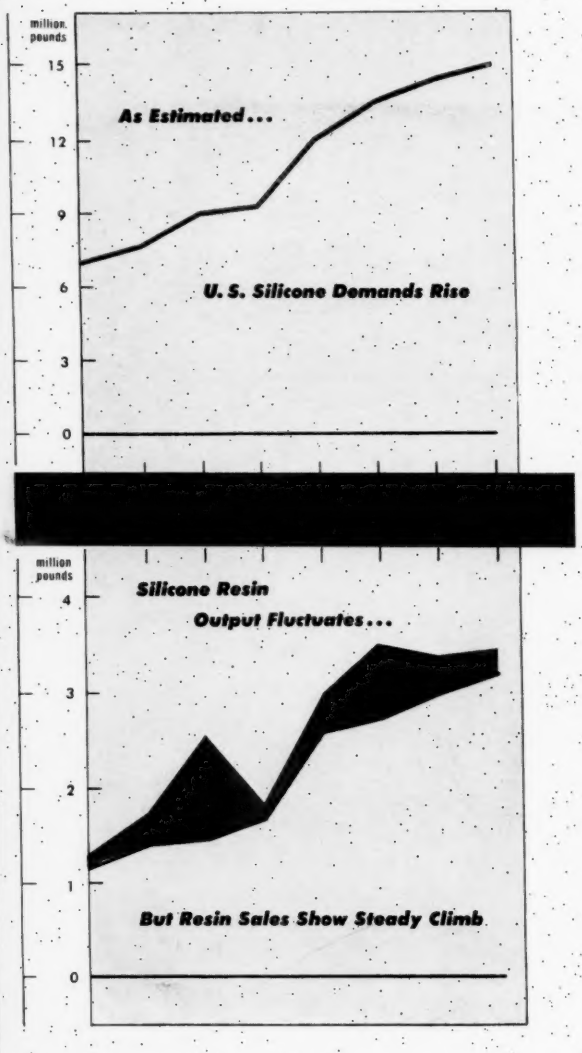
Chemical Week

July 26, 1958



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Silicones show strength—reflected in booming production of resins . . . . . p. 85

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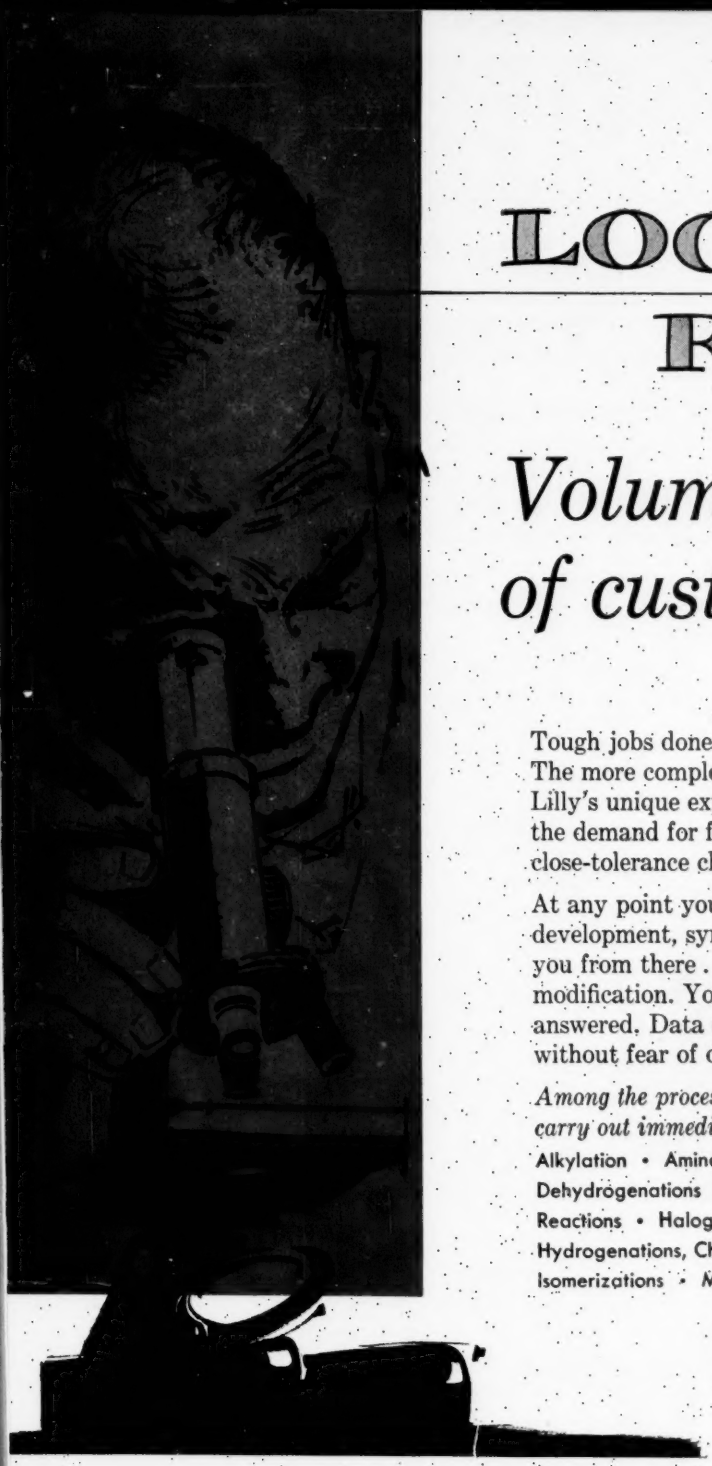

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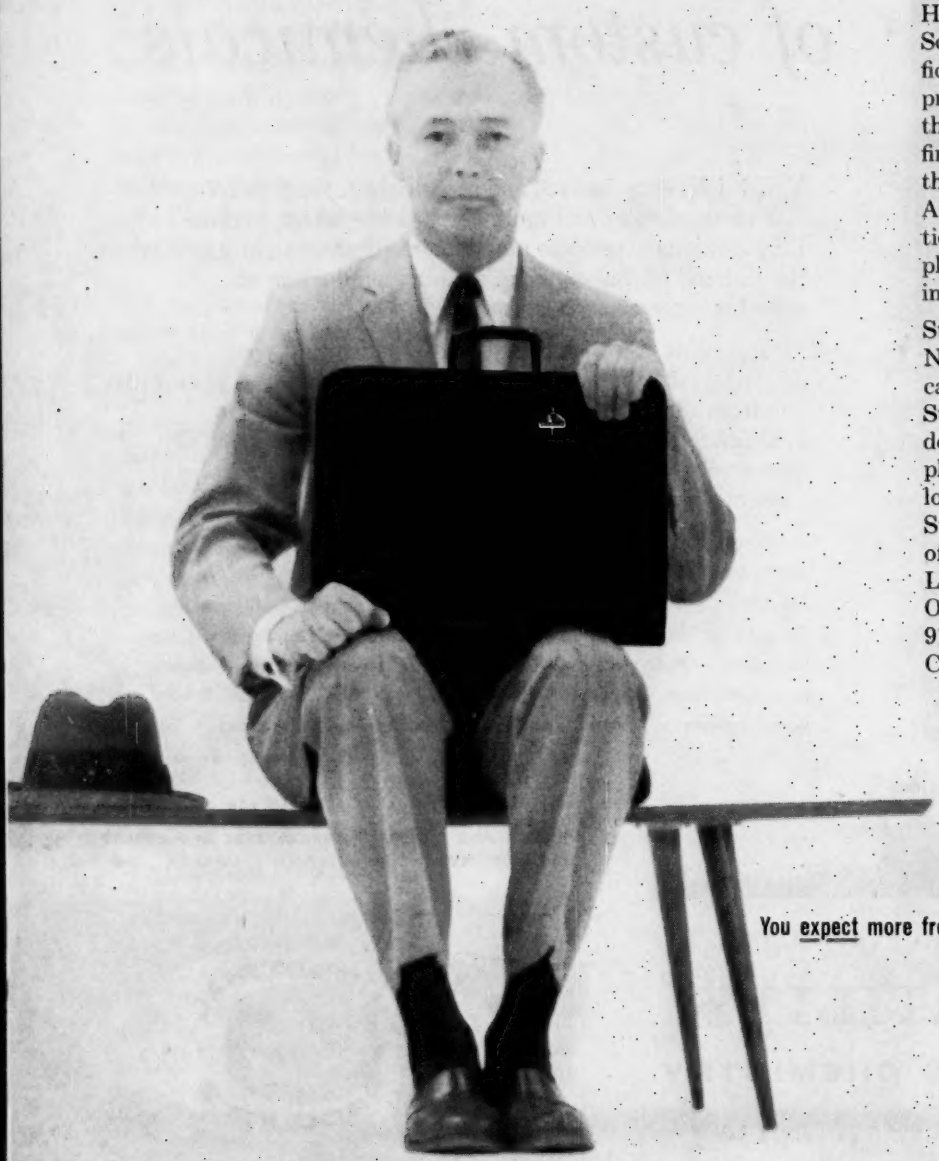

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Chemical Week

TOP OF THE WEEK

JULY 26, 1958

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No. 4

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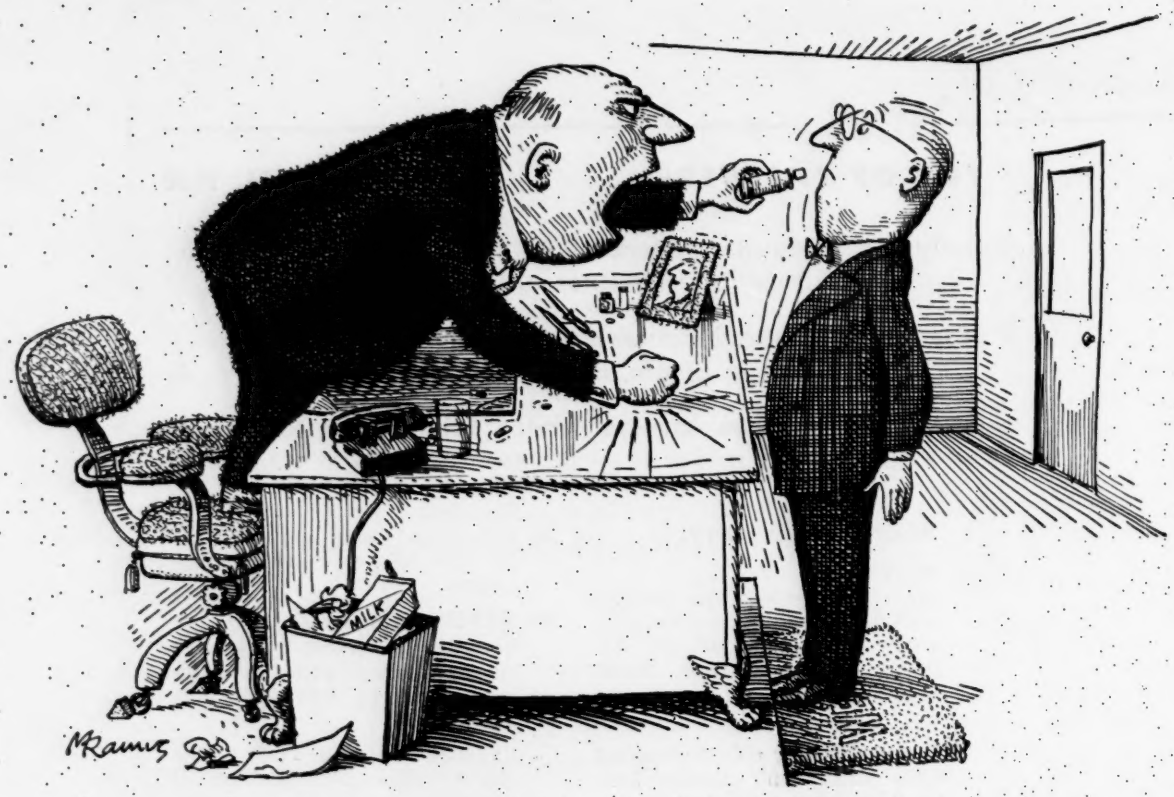

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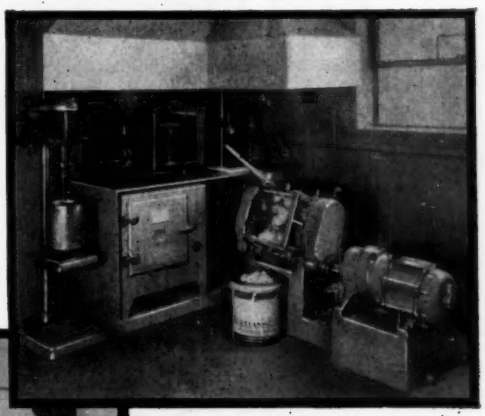

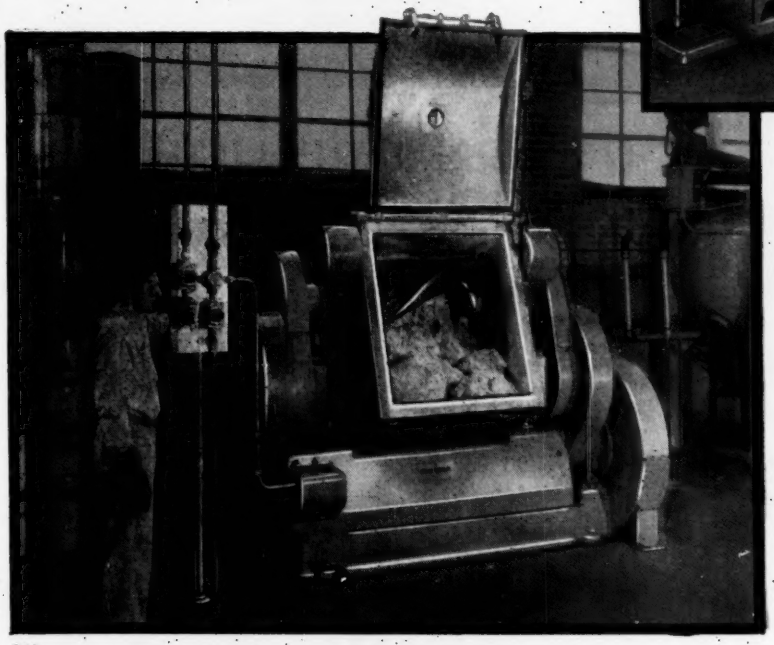

See our insert in Chemical Engineering Catalog for additional information.

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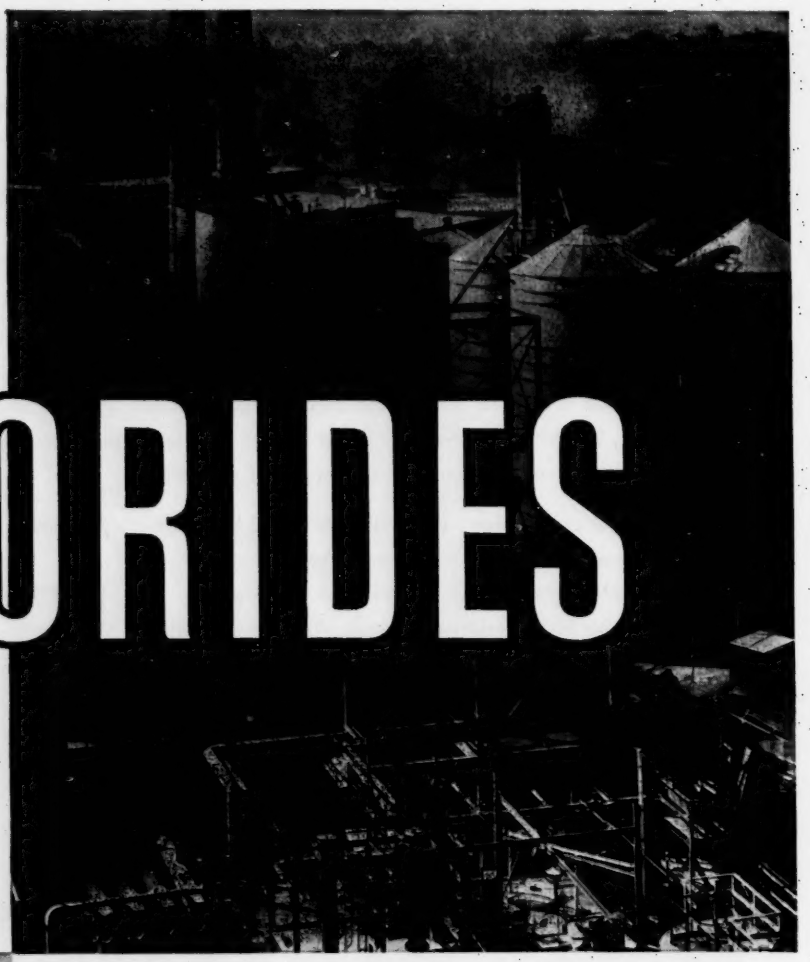

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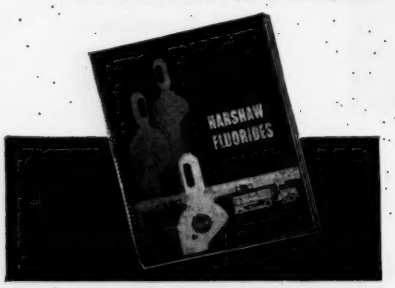

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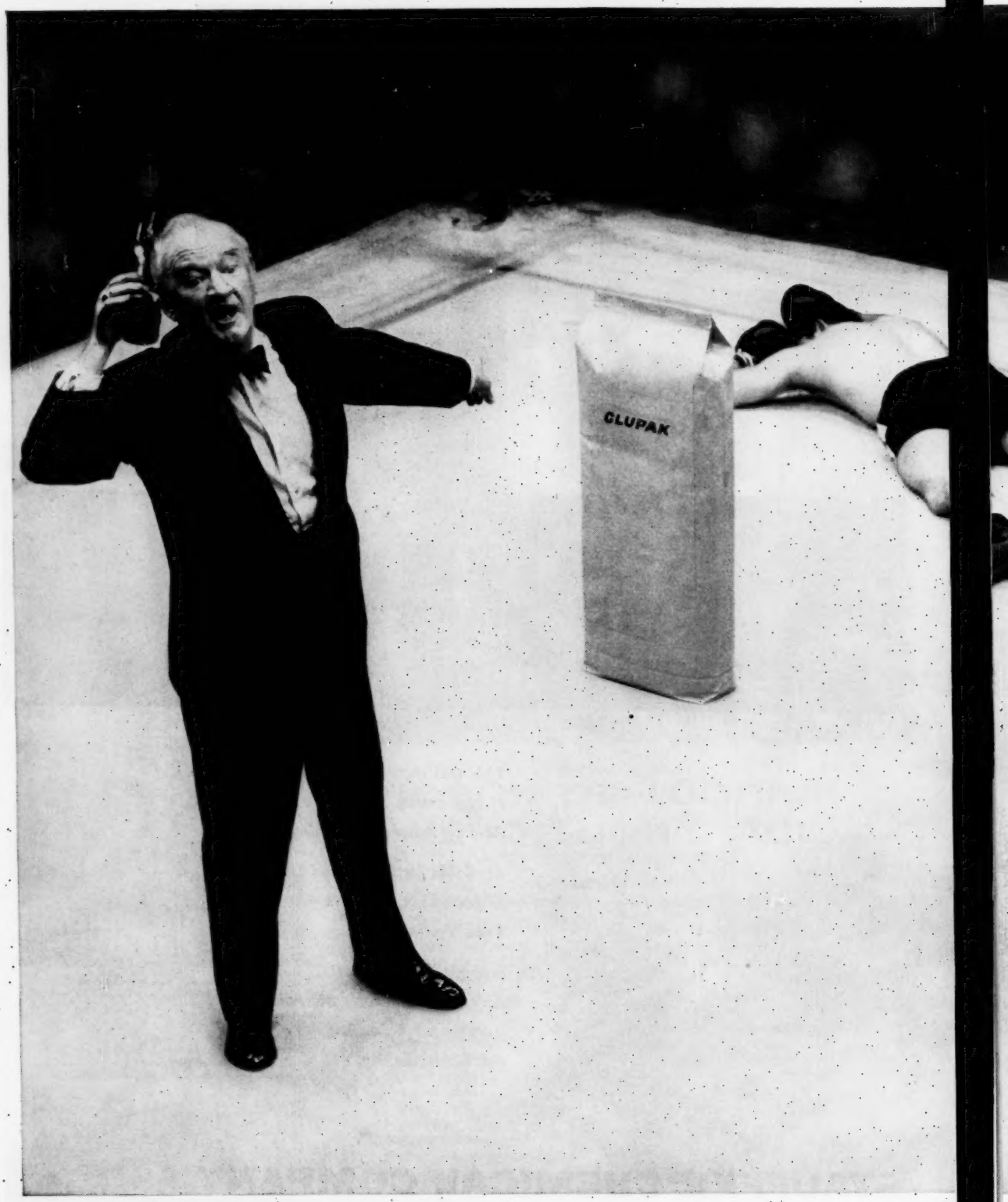

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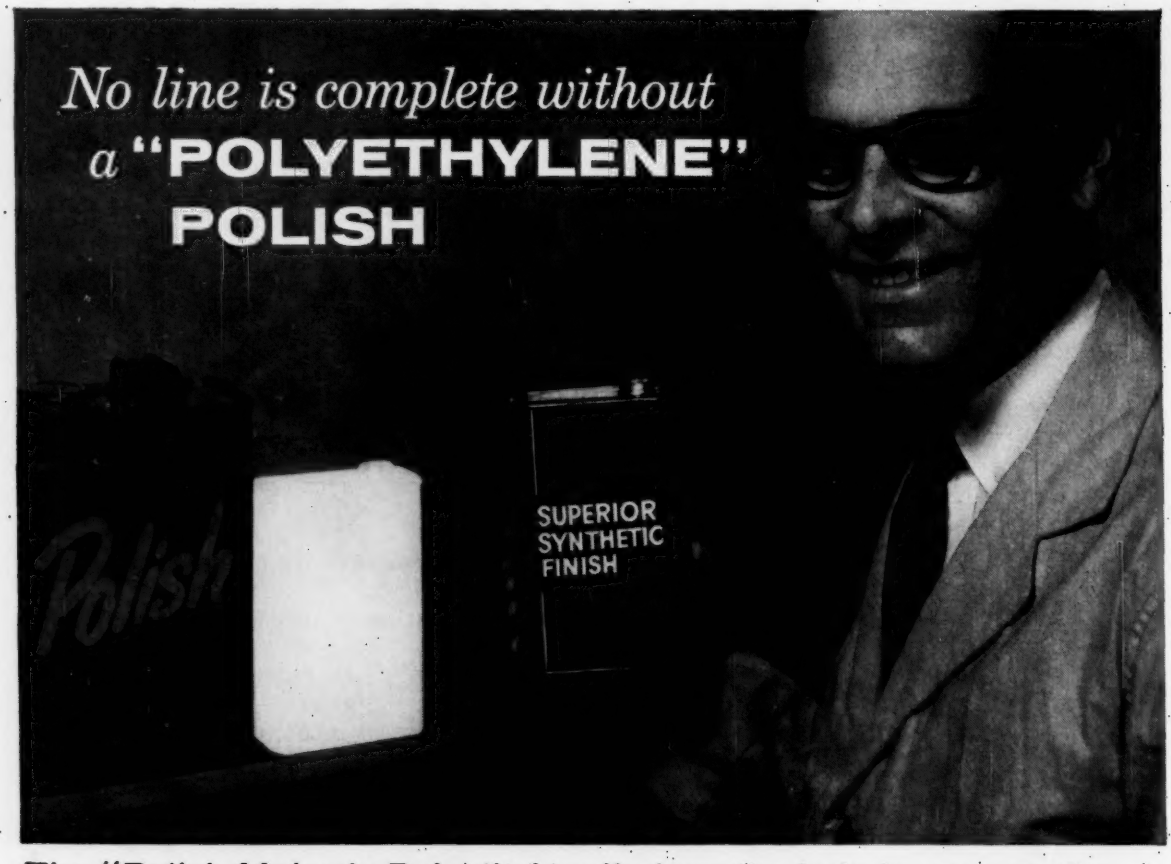

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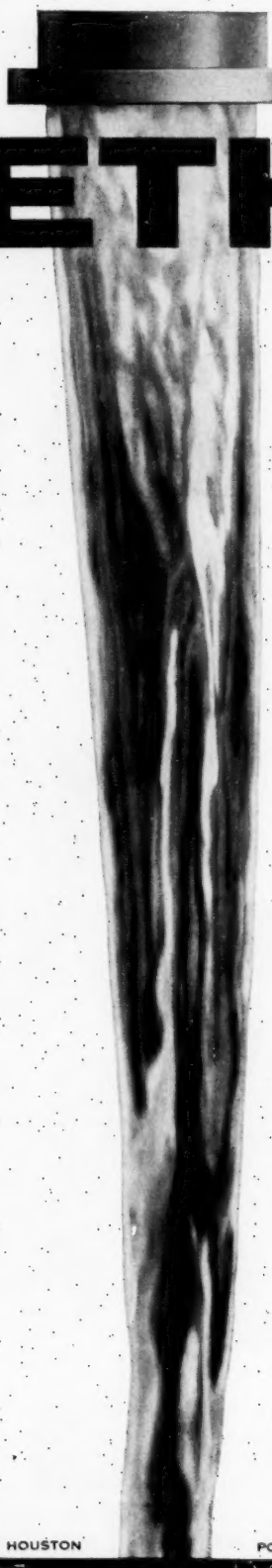

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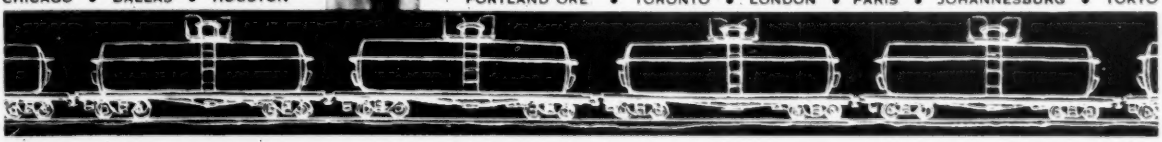

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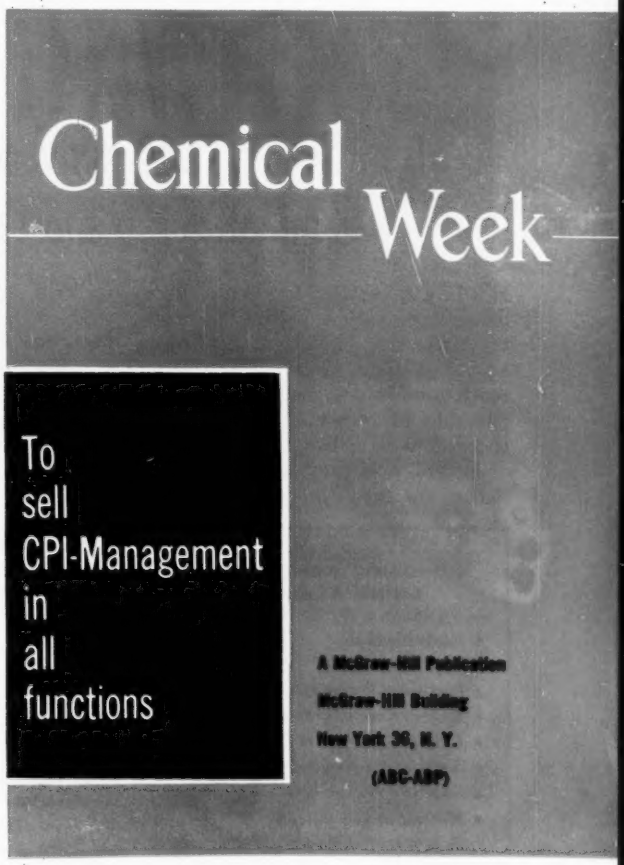

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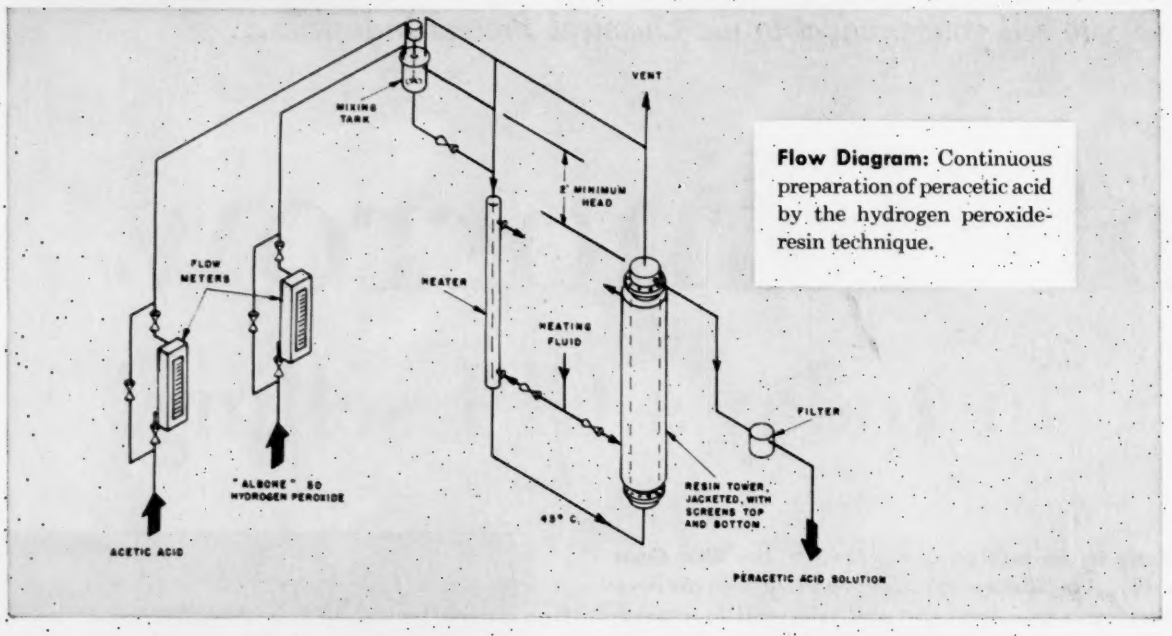

Flow Diagram: Continuous preparation of peracetic acid by the hydrogen peroxide-resin technique.

Du Pont process converts hydrogen peroxide to peracid in minutes . . . shortens route to useful products

Here's a quick way to activate hydrogen peroxide in organic chemistry by converting it into peracetic acid. Ordinarily requiring 7 days to reach equilibrium, the conversion of peroxide to peracetic acid can be speeded to an overnight wait by use of mineral-acid catalysts.

But: Du Pont's process allows you to obtain peracid in minutes.

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- **Sulfur Oxidation**
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- **Polynuclear Cleavage**
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The importance of this method lies in the fact that peracetic acid can be prepared almost instantly at the site of operations by simply passing hydrogen peroxide and acetic acid over a stationary catalyst bed. This process can be operated continuously or batchwise and avoids the higher costs, handling and storage difficulties and certain hazards usually involved in using peracetic acid. And it's a good method of obtaining peracid free of mineral-acid catalysts, without needing a separate neutralization step.

When requiring peracetic acid for an organic oxidation, the chemist simply adds a mixture of glacial acetic acid and "Albone" hydrogen peroxide to a column containing about 3 inches of solid catalyst. The column consists of a 1" x 12" jacketed inner tube fitted with a sintered-glass filter and an ordinary stopcock. Adjusting the flow of effluent at 40°-45°C. through the stopcock to give contact time as low as 15 minutes allows maximum conversions to peracid.

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Send for booklet about the preparation of peracetic acid from hydrogen peroxide. Du Pont technical specialists—backed by a new, fully equipped Sales Technical Laboratory—will be glad to help you in your use of Du Pont "Albone" hydrogen peroxide in organic synthesis. Just write to:

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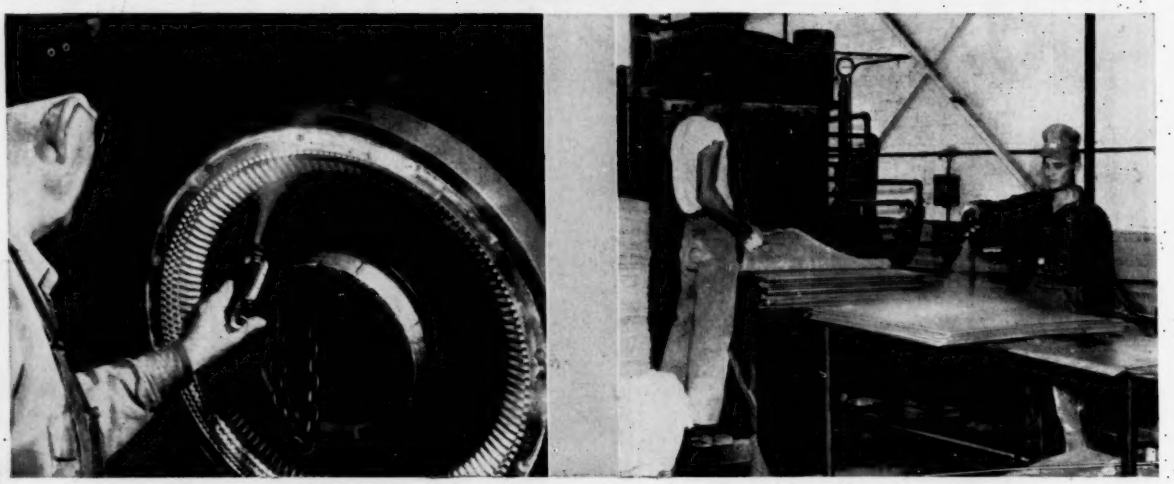

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Business Newsletter

CHEMICAL WEEK
July 26, 1958

Chemical industry cash dividend payments are holding up even better than those of most industries, latest Commerce Dept. figures reveal.

Manufacturers, in general, are apparently choosing to squeeze retained earnings rather than trim dividends. Despite generally lower earnings, total cash dividend payments during the first half of this year dropped only 1% from the level of the comparable '57 period.

Chemical company payments, on the other hand, rose 2.5%—from $429.8 million to $440.6 million. In June, they slipped a hair—to $166.1 million, compared with the previous June's $166.9 million. Oil refiners also pushed payments 3.2% higher than in the first half of last year. But nonferrous-metals producers slashed dividends 27%.

•

Wage payments, too, are on the rise. Du Pont this week is putting an extra 8¢/hour into the pay envelopes of production workers at its Chambers Works (Deepwater, N.J.)—their second increase in seven months. They're members of the independent Chemical Workers Assn.

•

Hercules is hustling its new high-temperature thermoplastic into commercial production. The chlorinated polyether has been in pilot-plant production for the last two years at Hercules's Wilmington research center. Now, the company says, a new, temporary production unit is turning out larger quantities to fill the "growing demand," until a full production plant is built at Parlin, N.J. Hercules says the molding material withstands "much higher temperatures" than most other thermoplastics, touts it as a possible rival to nylon molding resins (*see also p. 23*).

•

Koppers Co. is joining in two South American polyethylene ventures. With Bacol S.A., 50% subsidiary of Chemische Werke Huels, Koppers will build a 3,600-tons/year low-pressure polyethylene plant in Cubatao, Brazil. Huels will supply the process and supervise technical work. The plant is slated to go onstream in '60.

And in Argentina, Koppers' subsidiary, Industries Plasticas Argentinas Koppers S.A., recently contracted with the state-owned oil trust to buy 100,000 cu. meters/day of residual gas for a projected ethylene and polyethylene plant at La Plata (just South of Buenos Aires).

•

W. R. Grace will be helping to produce fertilizer in Trinidad next year. In partnership with other investors, Grace has formed a new company, Federation Chemicals Ltd. Offices and plant will be at Point Lisas. Construction of the $12-million plant started in May, is slated for completion in the second half of '59. Grace will have over-all management

and sales responsibilities. Capacity: ammonia, 100 tons/day; sulfuric acid, 200 tons; ammonium sulfate, 245 tons; urea, 70 tons. C. F. Braun (Alhambra, Calif.) is building the plant. M. W. Kellogg (New York) designed the ammonia unit.

•

And Grace reportedly is negotiating for acquisition of Manganese Reduction Corp. (Baltimore), a refiner and processor of manganese ores.

Officially, Grace executives refuse to comment on the report. A Manganese Reduction spokesman says there have been negotiations with Grace and with other companies, but that (as of *CW* press time) there was no merger agreement.

•

Rayonier Inc. (New York) has a new man at the top. Stepping in as president and chief executive officer is Russell Erickson, formerly executive vice-president. He replaces Clyde B. Morgan, who becomes chairman of the board.

•

To coordinate its activities in the missile field, Minnesota Mining & Manufacturing Co. (St. Paul, Minn.) has formed a Missile Industry liaison staff group. It will keep the company's top management and product divisions abreast of industry developments, coordinate new-product development and help find new missile applications for existing products.

•

That overseas business is becoming increasingly important for chemical process companies is implicit in corporate moves last week by Du Pont and by Enjay Co., Inc., subsidiary of Standard Oil Co. of New Jersey.

Du Pont has raised the status of its International Dept., giving it "full responsibility to the executive committee for liaison with managements of foreign subsidiaries." Heading the department as general manager: W. Samuel Carpenter 3rd.

Enjay has formed a new sales division to consolidate export of all Enjay productions—including butyl rubber and other polymers, chemicals and petroleum additives. Division manager: G. M. Hebert.

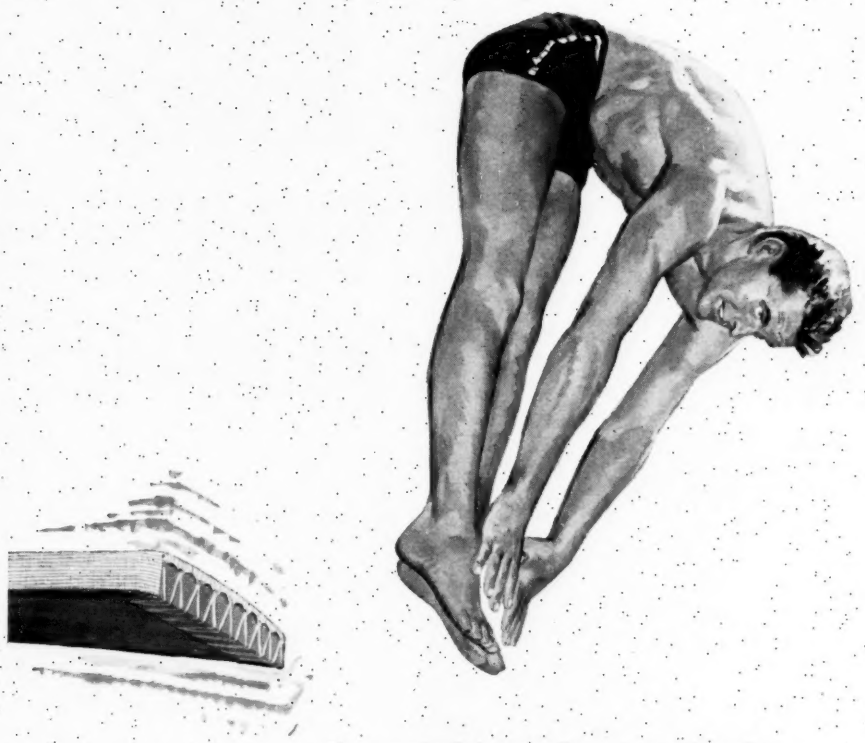
•

Late sales figures help bolster business-pickup talk *(p. 27).*

Du Pont's second-quarter sales—$438 million—were 5.5% higher than the first-quarter figure, and there appears to be no simple seasonal explanation for the gain. Six-month earnings of $3.08/share were down from last year's $4.30. First-half operating income dropped from $3.02 in '57 to $1.81/share.

Parke, Davis reports sales for the first half of this year totaled $83.2 million, 9.7% over the first six months of '57. Smith, Kline & French says this year's first-half sales hit $61.4 million, compared with $55.7 million for the '57 period.

sodium
alcoholates



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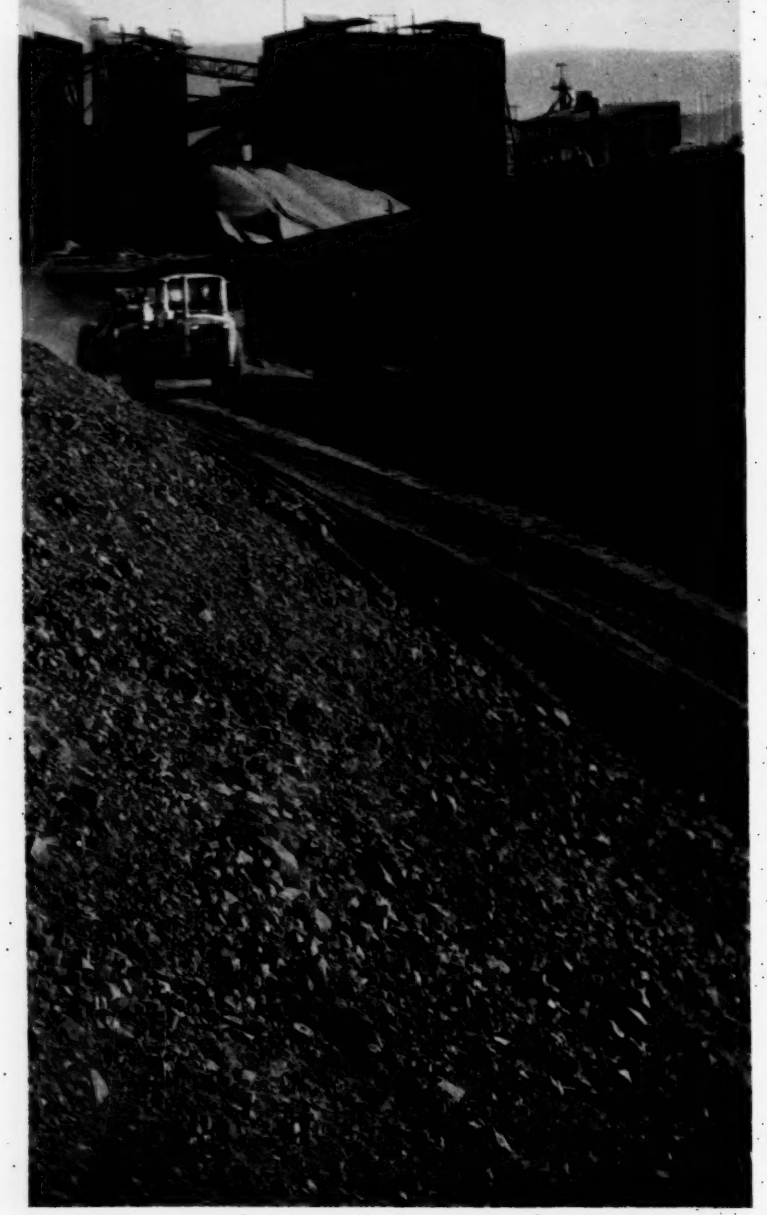

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VIEWPOINT

JEROME S. SPEVACK'S attorneys are currently preparing their case for a new and, most likely, final appearance before the U. S. Supreme Court. At stake: Spevack's patent rights as the inventor of a heavy-water and deuterium process and, of broader significance, the rights of future private inventors whose discoveries may be classified by the Atomic Energy Commission.

Recognizing the significance of the case—in which Spevack seeks a permanent injunction barring AEC disclosure of his patent application—both the American Chemical Society and the Engineers Joint Council filed *amicus curiae* briefs in support of Spevack's earlier appeal to the Supreme Court.

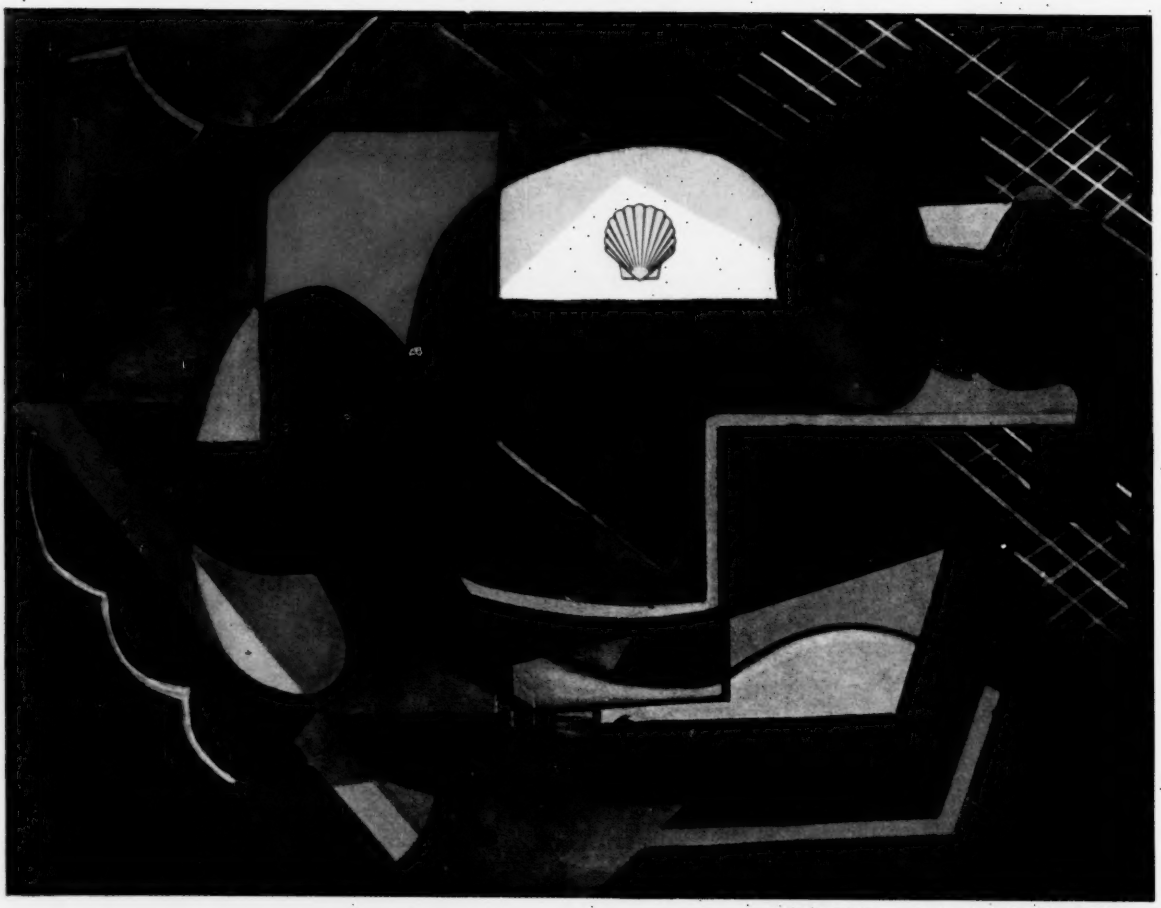
Spevack claims that the Atomic Energy Act of '54 doesn't authorize AEC to disclose information it would not otherwise have a right to make public. He further claims that if the act is interpreted to give the commission the authority to disclose his patent application, then the act violates the fifth amendment of the U.S. constitution, which prohibits the deprivation of private property without due compensation. The act does not provide for compensation.

ACS backs up Spevack's arguments, and the joint council goes so far as to say that "the issues involved affect the welfare and security of our country's engineers and scientists . . ." The question, in the eyes of the Joint Council: "Under the Atomic Energy Act, does an inventor who complies with the act (by turning over strategic material and information to the government) forfeit his rights under the patent act, which ensures confidential treatment?"

The case has been lengthy and complicated, having already been heard in three different courts. The legal technicalities, however, must not be permitted to obscure the fundamental issue: the rights of an individual caught up in the toils of bureaucracy.

H. C. E. Johnson

Editor-in-Chief



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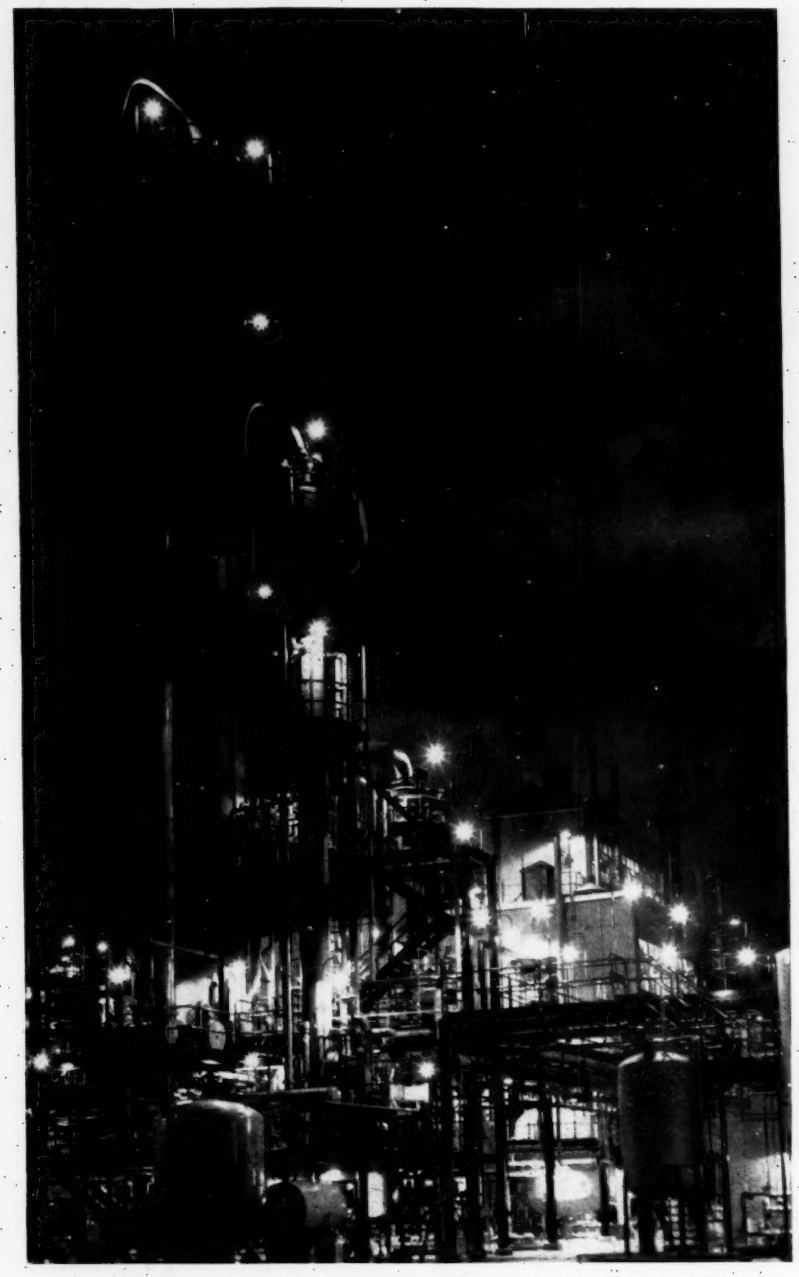
Chemical Week

July 26, 1958

Nylon, Polyolefins—Running Separate Races



More monomer for molding nylons will be produced by Allied at Hopewell, Va., despite rocketing rise in linear polyethylene output.

By their current buildup of production capacity, producers of nylon molding resins are forcefully reiterating the conviction that their products will get little competitive jostling from the linear polyolefins and other new plastics. Expansion programs for nylon, polyethylene and polypropylene are all moving ahead this week.

Pressing eagerly onward in the field of nylon molding resins are Foster Grant Co. (Leominster, Mass.), whose nylon-6 plant at Manchester, N.H., went into full-scale production early this month; and Spencer Chemical Co. (Kansas City, Mo.) and Industrial Rayon Corp. (Cleveland), which two weeks ago formed the jointly owned Ohio River Chemical Co. to produce caprolactam near Ashland, Ky. Also expanding in this field: Allied Chemical's National Aniline Division, which by early next year will expand caprolactam capacity at its Hopewell, Va., plant (*photo, left*), to 60 million lbs./year. Some of this plant's output is polymerized into nylon-6 molding resins and sold by Allied's Plastics and Coal Chemicals Division.

Biggest in the nylon field, of course, is Du Pont, whose Parkersburg, W. Va., plant was expanded last year. Capacity: 25 million lbs./year of about 11 kinds of nylon plastics. Du Pont generally produces its own monomers—caprolactam, for nylon-6; hexamethylene diamine (HMDA), for nylon-6/6; and HMDA and sebacic acid, for nylon-6/10.

Modest But Steady: These nylon plastics producers expect consumption of their products to increase steadily but at a relatively modest rate (*see table, p. 24*). They see nylon as uniquely fitted for certain applications (particularly those calling for hardness, strength and heat resistance), feel that nylon resins—even at more than $1/lb.—will capture the market for these applications.

In the fiscal year beginning this

month, Spencer expects to triple its last year's output of nylon-6 resins. Behind this anticipated increase, says Spencer, is: "type-6 nylon moving into established nylon markets"; and "new market uses such as housings, shoe heels and cable coatings."

Spencer—which uses caprolactam to make nylon-6 at Henderson, Ky.—is a producer of conventional polyethylene, has considered production of the high-density, linear material. This company has been doubling its polyethylene capacity, but is equally interested in nylon resins. It will manage the Ohio River Chemical caprolactam plant and sell some of the monomer on the open market.

Enthusiasm for Extrusions: Spencer is particularly enthusiastic about prospects for nylon-6 extrusions—rods, tubes, sheets and films. But it concedes that extrusion markets right now are small. "We will want to maintain and improve our position in these thermoplastic materials," says a Spencer spokesman. "If this necessitates expansion, we will expand."

Foster Grant's work with nylon resins up to now has been mainly on an experimental and development basis. Now that its plant is fully onstream, the company hopes to move some 2 million lbs. of nylon-6 into the market during the first year of operation. Company President Joseph Foster predicts that consumption of molding and extrusion nylons will increase fivefold within a decade.

The Massachusetts concern says it is basing its sales approach primarily on substitution of nylon for metal, but thinks that up to 50% of sales might involve switches from other types of resins.

Little Overlap: Du Pont, too, feels that nylon's job is to replace die-cast metals, whereas the hydrocarbon resins are more suitable as replacements for paper and glass. "There's very little overlap in applications of polyolefins and nylons," Du Pont says. "Production costs and end-uses are quite different."

The same line is taken by Spencer, which expects very little competition from polyolefins in the major markets for nylons. And it believes the commercial growth of newer resins, such as polycarbonates, will be slowed by lack of molding and processing data and by the difficulty of establishing field tests.

Union Carbide's Bakelite Co. Division—No. 1 producer of polyethylene—sees the possibility that some nylon molding applications might be taken over by linear polyethylene. "This switch in materials, however," a Bakelite specialist adds, "is expected to be as low as 3-5%." In general, Bakelite figures that linear polyethylene will, to a great extent, find markets of its own.

Eightfold Increase: Bakelite produced linear polyethylene only in pilot-plant quantities last year, but now has capacity for 55 million lbs./year. The company foresees only about 35-50-million-lbs. domestic consumption this year, but by the early 1960s looks for demand to nearly equal the present total industry capacity: about 310 million lbs./year.

Phillips Petroleum—another big name in polyethylene—suggests that linear polyethylene may replace nylon where desired properties are self-lubrication and sterilizability. But Phillips engineers consider nylon molding resins to be relatively high-cost specialty items for comparatively small markets. They feel that linear polyethylene markets will largely result from new applications requiring economy and serviceability beyond the reach of previously available resins. They also expect the polycarbonates to be in a higher price bracket than linear polyethylene, hence not likely to compete for the same big markets.

Phillips' market researchers expect linear polyethylene production by Phillips and its licensees to increase 10-fold from 1957 to '58, and three- to fivefold next year.

Hercules Powder—pioneer producer of polypropylene and one of the first in linear polypropylene—says its 1958 polyolefin sales are far ahead of last year's, when production was just getting started. Outlook: next year will bring a threefold increase over the 1958 level.

Inroads on Nylon? "We are doing extensive development work on the use of polyolefins, and we believe the polyolefins will make inroads on nylon markets," Hercules tells *CW*. "The extent of these inroads cannot be determined as yet. Price, of course, is most important in this respect, but the properties and functional values of the polyolefins also are very important."

Hercules expects "a continued rapid growth in the use of polyolefins," has "definite plans" for expansion. In addition, Hercules feels its new Penton polyether resin will figure into future competition with nylon.

The nylon-polyethylene price spread is approximately 70-75c, with nylon selling for about $1.15/lb. and linear polyethylene marked at 43¢/lb. Principal producers expect that the price spread will not be narrowing over the next few years.

LINEAR POLYOLEFINS PUSH AHEAD—BUT NYLON MAKERS ARE NOT PERTURBED

(Estimated U.S. consumption, in million pounds)

Plastic	1957	1958	1959	1960
Linear polyolefins	10	50	120	250
Nylon molding resins	15	20	25	30

Fallout in Detroit

Officials of Atomic Power Development Associates were busy last week explaining the alkali fallout that injured five children and damaged several homes and cars in Detroit on July 11.

An unexpected wind shift carried the caustic cloud from a nearby quarry, where APDA is conducting sodium-water reaction experiments. The work is in connection with construction of the Enrico Fermi power reactor near Monroe, Mich. (*CW, May 10, p. 23*).

The fallout contained nothing "that was the least bit radioactive," APDA explained. The group is studying unusual circumstances under which sodium might come in contact with air or water. The tests are not related to operation of the reactor itself. Three more tests are slated.

WIDE WORLD

Military supplies following troops ashore in Lebanon won't strain stockpiles unless crisis deepens.

Short of All-Out War, No Drain on Industry

In the aftermath of last week's action in the Near East, the future is a flaming question mark. But for all the confusion and uncertainty, chemical process industries leaders could find several guides to what lies ahead for business and the economy.

Assuming that President Eisenhower's "calculated risk" in sending Marines to Lebanon results in no more than limited action, military demands will not rise drastically.

Government buying will increase, governments aides tell *CW*, but selectively. Missile bases will demand stepped-up delivery, faster production of rockets and fuels. Consumers, economists expect, will buy the things they think will be hard to get. But there will be no sharp impact on business plans or on the economy.

If limited action flares into "brush-fire," Korean-style war, industry will feel a sharper impact. But it won't be as sudden nor as dramatic as it was in '50.

Then, the U.S. went to war suddenly, at a time when military spending had hit a postwar low of nearly $13 million. The 1949-50 recession had ended and business was turning up. The pressure on materials and prices came suddenly and led to allocations and price controls.

Now, however, defense spending is at a postwar peak of some $40 million and our weapons supply is larger. Yet, the country is in a recession, with idle capacity in almost every sector of industry.

Controls in Reserve: Government sources say a brush-fire war could bring a sharp lift, if only because the military strives to maintain its present stockpile levels. And controls are a real possibility.

Unless there's an all-out war, a Defense Dept. official informs *CW*, no major reappraisal of arms production plans is in the cards. There is, he says, nothing we could do fast enough to significantly improve our capabilities. Nor is the Administration believed to be planning to ask Congress for stand-by controls.

Washington is not yet worrying about the supply of strategic materials. Stockpiles are brimming over. Priorities are in effect on only a few materials — aluminum, copper, nickel, steel—but since they are all in oversupply, priorities in these cases have little practical meaning for industry. But, if the conflict and military demands sharpen, the government can allocate scarce and critical commodities. This would occur only when the military is consuming the bulk of the commodity.

No Budget Bulge: No great impact on the federal budget is expected by Defense Dept. officials, unless the present action broadens into war. One Pentagon source says, "Even if the Russians veto our resolution (that a U.N. police force go into Lebanon), and we keep forces there, we will have no dollar problem."

One of the most immediate concerns of government planners is the threat of severed oil lines from the Mideast to Europe. If the Arabs halt the oil flow, the U.S. will have to provide emergency supplies, as it did during the Suez crisis. No one can say how much oil this would drain from domestic use.

Concern over possible loss of Near-Eastern oil sources has already focused attention on adequacy of the domestic supply. Representatives of shale-oil interests are pointing up the need to develop domestic oil sources that would help make the U.S. independent of imported crude.

And the rumblings of war will evoke similar reactions from those who have been pressing for tariff protection for defense industries.

Kentucky Makes Three

Barring a hitch in negotiations that are already in the final stages, Harshaw Chemical Co. (Cleveland) will soon take over Kentucky Color & Chemical Co. (Louisville).

This will be the third acquisition within four years for Harshaw; and all three additions have been in the field of pigments. First of these was Zinsser & Co. (Hastings-on-Hudson, N.Y.), maker of high-temperature and water-emulsion pigments. Then came the pigment color division of United Wallpaper, Inc. (Joliet, Ill.). And next—sometime this fall—will be the 39-year-old Louisville company that specializes in bright-hued dry colors for paints, varnish, enamel, lacquer, inks, linoleum and plastics.

Harshaw last year put most of the Zinsser operations into a newly formed Pigment Division, and has announced that Kentucky Color will be operated as a separate subsidiary. In store for Kentucky Color: "improvements and additions to the Louisville plant, and extension of research and product development activities."

Harshaw's other pigment manufacturing unit is its Ceramic Colors Division. This operates at Elyria, O., in a plant on the site formerly occupied by a linseed oil mill bought by company founder William Harshaw in 1895.

Kentucky Color — headed by brothers Sevier and Robert Bonnie—was founded shortly after World War I, when U.S. industries were still handicapped by lack of dyes and colors that previously had been imported from Germany. It was installed in part of the former Bonnie Brothers Distillery, and since then has grown to the point where it now has more than 150 employees. Aside from pigments, Kentucky Color produces—in lesser volumes—insecticides and fillers.

Safety Study on FGAN

Shipping and handling methods for ammonium nitrate — an important fertilizer material that is finding increasing use as a major component in commercial explosives—are being reviewed by an industry committee **that was organized last week.**

The committee, made up of ammonium nitrate specialists from various producing companies affiliated with Manufacturing Chemists' Assn., held its first meeting last week under MCA auspices in Washington.

Probable task for the committee: to determine whether it is desirable to publish additional information about safe handling of the nitrate for shippers and handlers. By itself, the fertilizer-grade ammonium nitrate (FGAN) is not an explosive; but it can be detonated when it is mixed with certain other compounds (*CW Technology Newsletter, Dec. 10, '55*).

Fibers for Russia

Russia's widely proclaimed interest in getting Western help with its synthetic fiber and plastics expansion program (CW, June 7, p. 13) materialized last week in a multimillion-dollar equipment contract for Courtaulds, Ltd., Britain's largest synthetic-fiber producer.

Courtaulds will supply, install and supervise initial output of cellulose acetate yarn equipment in the Technopromimport factory in Moscow. The Russians are building the plant and will supply raw materials for production. Courtaulds will fabricate some of the equipment in its Coventry plant, buy the remainder.

The contract—resulting from negotiations by Courtaulds Managing Director C. F. Kearton in Moscow several months ago—may be the first of several Russian fiber and plastics equipment contracts with Western firms. Actually, a cellulose acetate plant was not on the Russian "shopping list" circulated a few months ago in England, West Germany, and U.S.

Since World War II, the only other large contract for a complete plant signed by Russia in England was one early this year for a $35-million tire plant (also absent from the shopping list). The contractor is Rustyfa Ltd., a consortium of six British companies. Dunlop's advisory service is consulting engineer. The 2-million-tires/year plant is under construction in Dnepropetrovsk (in the Ukraine), is slated for completion late in '59.

Other British companies interested in doing business with Russia have not fared as well. Imperial Chemical Industries, for example, after four years of negotiations, still has not concluded a deal to sell the Russians Terylene fiber production know-how.

And Kestner Evaporation and Engineering Co. Ltd. tells *CW:* "We've spent an awful lot of time and money in quoting proposals to the Russians over the last four years—and we've yet to get a brass farthing out of it."

The Courtaulds deal, observers feel, may be a sign that Russia is finally ready to get down to business.

Aluminum Seeks Aid

The aluminum industry took its international-trade complaints to the U.S. State Dept. last week. The trip to Washington was part of an industry compaign to get government relief from competing imports, particularly those spurred by Russian "dumping" on the London market (CW, Market Newsletter, June 14).

Led by Reynolds Metals Co., six industry representatives* gave Undersecretary C. Douglas Dillon their views on how to counter the Russian gain. Their proposals: a joint U.S.-Canadian commission to study channeling aluminum from non-Communist nations to new markets in underdeveloped areas; and tariff protection for domestic production—protection the State Dept. could seek through its trade agreement negotiations.

The producers' campaign will also take them to the House of Representatives, where they'll fight for recognition in the Interior Dept.'s mineral subsidy bill. (The Senate passed the bill, but excluded aluminum.) They'll meet with heads of the Treasury Dept. and the Office of Defense & Civilian Mobilization to discuss filing petitions for antidumping relief or tariff protection on grounds of national security. And they may file for Tariff Commission escape-clause relief.

A problem for the aluminum men is State and Interior Dept. officials who do not regard the Russian aluminum threat as serious enough to warrant immediate government action. The talks with Dillon, in fact, were forced by a letter from 17 Senators to Secretary of State Dulles.

But the State Dept. is showing a new willingness to discuss international production and trade problems with commodity producers. It's now studying proposals for international controls on coffee, copper, lead, zinc, tin and copra.

* At the meeting: the presidents of Reynolds and Revere Copper & Brass; vice-presidents of Alcoa, Anaconda Aluminum, Harvey Aluminum, Kaiser Aluminum & Chemical and Olin Mathieson.

SPRING QUARTER YIELDS SUNNIER STATEMENTS

Early-reporting companies' performances during first half of 1958

COMPANY	Second quarter of '58 compared with first quarter of '58		First half of '58 compared with first half of '57	
	SALES	EARNINGS	SALES	EARNINGS
Allied Chemical	Up 11.8%	Up 26.5%	Down 9.8%	Down 30.3%
Chemstrand	Up 24.2%	Up 136.8%	(1)	(1)
Colgate-Palmolive	Up 6.9%	Down 10.9%	Up 4.2%	Down 1.7%
Goodrich Rubber	Up 6.2%	Up 27.5%	Down 8.8%	Down 27.5%
Hercules Powder	Up 5.5%	Down 1.9%	Down 6.4%	Down 13.6%
Hooker Chemical (2)	Up 7.6%	Up 3.2%	Down 4.8%	Down 6.2%
Industrial Rayon	Down 12.2%	(loss)	Down 29.3%	(loss)
Johns-Manville	Up 33.6%	Up 223.3%	Down 6.6%	Down 7.0%
Libbey-Owens-Ford	(3)	Down 43.3%	Down 22 %	Down 58.4%
Eli Lilly	Down 6.0%	Down 17.2%	Down 12.8%	Down 33.9%
Monsanto Chemical	Up 9.4%	Up 19.7%	Down 7.4%	Down 40.4%
Pan American Sulphur	(3)	Up 4.9%	(3)	Down 4.9%
Rohm & Haas	Up 13.0%	Up 19.3%	Down 8.1%	Down 24.4%
St. Regis Paper	Up 11.5%	Up 20.9%	Down 4.6%	Down 25.3%
Scott Paper	Up 0.5%	Up 4.1%	Up 1.6%	Up 0.7%

(1) Data for first half of 1957 not reported. (2) Consolidated data for Hooker and Shea Chemical, merged May 29. (3) Quarterly sales data not reported.

Fair and Warmer Forecast for Business

Even allowing for seasonal factors, there's a cheering tone in the second-quarter statements put out last week by early-reporting chemical process companies. For most of those companies, April-June sales and earnings were decidedly better than first-quarter results.

In some cases, of course, the seasonal influence was the major cause for the improved performance. Johns-Manville, for example, is bound to benefit from increased construction activity that normally comes with warmer weather; and Allied Chemical usually sells somewhat more nitrogen fertilizer material in the spring than in the winter.

Nevertheless, as the table shows, there are signs that the looked-for upturn may be at hand.

Peak for Comparison: Considering that the entire economy was at an all-time peak during the first half of '57, most of the process companies reporting last week can maintain that they were doing relatively well in the first six months of this year. Only three among the 13 companies providing comparisons reported more than a 10% drop in first-half sales.

Allied President Glen Miller says his company's second-quarter pickup was chiefly due to "a general improvement in sales volume for nearly all products." Vacation shutdowns and other seasonal factors will affect third-quarter results, but he expects that income for the entire year will cover dividend requirements.

Chemstrand points out that its heartening second-quarter resurgence came despite price reductions on certain principal products. It reports that Acrilan expansion projects in Alabama and Northern Ireland are on schedule and that plants are nearing completion.

Gains Foreseen: Hooker looks to its recent acquisition of Shea for "potential enhancement of earning"; with completion of a new hydroelectric power plant in '61, "power at reasonable rates will again be available."

Monsanto reports that its lower sales and earnings reflected not only decreased activity on the part of the company's industrial customers "but also the fact that an important Monsanto plant was idled by a strike from May 3 to July 9" (*CW Business Newsletter, July 19*).

St. Regis Paper brings out still another point indicating that the past six months' business hasn't been so bad after all: while the paper industry operated at 85.5% of capacity in first-half '58, compared with 93.5% in first-half '57, actual tonnage produced is off only about 5% because of capacity increases.

COMPANIES

Vitro Corp. of America (New York) has consolidated its capital offices at 1025 Connecticut Ave., N.W., Washington, D.C. Branch offices of two divisions of Vitro Engineering Co. (New York) and Thieblot Aircraft Co. (Martinsburg, W. Va.) also share the address.

•

Ashland Oil & Refining Co. (Ashland, Ky.) has acquired Anderson-Prichard Oil Corp.'s Ohio Division, which includes solvent and chemical distribution plants in Cincinnati, Dayton, Cleveland, Akron, Columbus, and Bellaire, O., and Indianapolis, Ind. Ashland has refineries in Kentucky, Pennsylvania and New York.

•

Du Pont's stockholders increased by 34,814 in the year ending June 30, '58. These were largely employees who became stockowners through the company's employee thrift plan. Du Pont's owners totalled 207,434, as of June 30: 192,520 common-stock holders, and 20,887 owners of preferred shares; 5,973 hold both types of stock.

•

Rockcote Paint Co. (Rockford, Ill.) stock now is being publicly offered by the Milwaukee Co. The issue includes 10,000 shares of common stock ($8/share) and 14,250 shares of Rockcote 7% series A cumulative convertible preferred ($10.25/share).

•

Houdaille Industries, Inc. (Buffalo) will purchase for cash all the capital stock of Provincial Engineering Ltd. (Niagara Falls, Ont., Canada). Provincial's engineering and construction division specializes in designing and building chemical, paper, mining, and cement plants. The Canadian company is now building a $25-million paper mill in East Pakistan.

EXPANSION

Lignosulfonates: Lignosol Chemicals Ltd. (Quebec City, Que., Canada) will double the capacity of its plant. The company converts sulfite liquor waste—piped in from a pulp mill—into lignosulfonate. A 100,000-lbs./day spray dryer and processing equipment have been ordered for the $1-million expansion program.

•

Organic Chemicals: Aldrich Chemical Co. (Milwaukee) has bought a 27,000-sq.-ft. building from Kolmar Labs. and is converting it into a fine-organic chemicals plant.

•

Fine Chemicals: Eli Lilly & Co. plans a $3-million, four-story control building at its Indianapolis plant. Construction will start in August, is slated to be completed by March, '60. Lilly recently put a $4.6-million fine-organic chemicals plant onstream at its Tippecanoe Laboratories (Lafayette, Ind.). The plant doubles Lilly's fine-organics capacity.

•

Alcohols: Union Carbide Chemical has started building a second oxo unit at Texas City. When it begins operating, probably in mid-'59, the new unit will double the refinery's present oxo-chemicals capacity. Products: propionaldehyde, normal and isobutyl alcohols, primary amyl alcohols, and isodecanol.

•

Hydrogen Peroxide: Facilities due to be completed in the spring of '60, will double peroxide capacity at Du Pont's Memphis plant. Last February the company started to build a unit there for producing ozone monopersulfate, an odorless household bleach; hydrogen peroxide is the prime raw material.

•

Resins: Shell Chemical has purchased an 18-acre tract in New Jersey's Cinnaminson and Delran townships, on the Delaware River, and is studying plans for a resins and plastics plant.

FOREIGN

Ethylene Oxide/Japan: Mitsubishi Petrochemical Co. (Yokkaichi) plans to double Japanese ethylene oxide capacity by building a new plant—the country's second. Mitsui Petrochemical Industries' Iwakuni plant which went onstream last May, is slated to produce 6,000 tons of ethylene oxide this year. To use the Scientific Design process, the Mitsubishi plant will double Japanese oxide capacity. SD will supervise construction and initial operation.

•

Plastics/East Germany: At the recent East German Communist congress, party boss Walter Ulbricht unveiled a new facet in Russia's plan to boost its supply of consumer goods and integrate Iron Curtain economies. The Reds plan to build a pipeline from Russia to Saxony (East Germany's "Ruhr"), increase oil shipments to this area almost 500% during the next seven years. Most of the total 5 million tons of oil, along with East German lignite, will feed plastics production. East German plastics output is slated to hit almost 300,000 tons by '65, slightly below West Germany's present output. A big oil refinery is also planned.

•

Plastics/England: Britain's plastics sales have leveled off, recently released figures reveal. First-quarter sales were 103,400 tons, about 14% over the same period in '57, but no increase over the previous quarter. Exports rose to 27,900 tons, 9% over the '56 period, and imports shot up 42%, to a record 10,100 tons. Thermoplastics now account for nearly 60% of total British plastics output, a 12% gain over last year.

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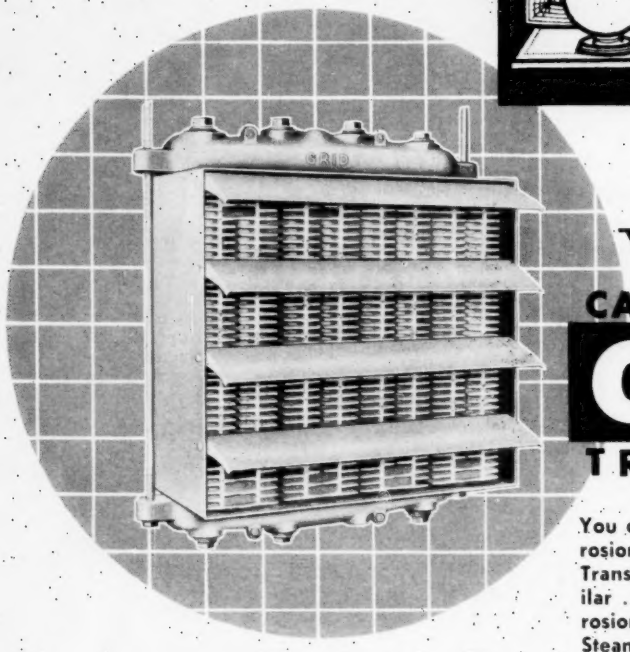

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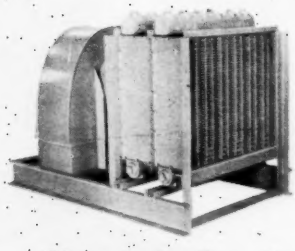

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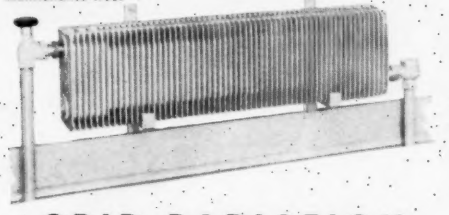

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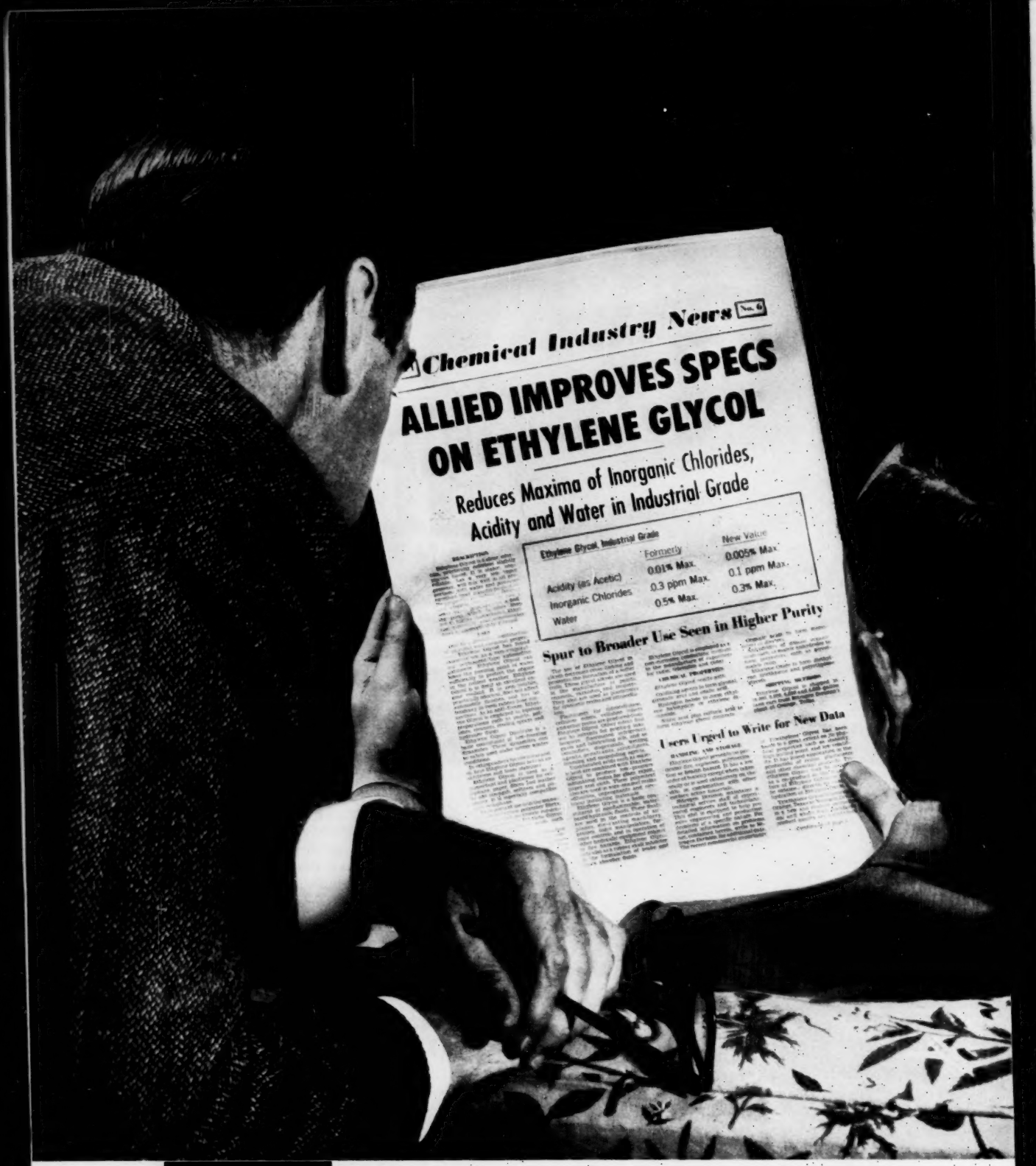

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Washington Newsletter

CHEMICAL WEEK
July 26, 1958

Washington is looking beyond the Lebanese problem. But how does the government figure the future? The best that can be deduced is that a major war is not a threat. Shooting is still remote—that is, so-called brush-fire fighting will be avoided if possible. The U.S. effort to get a United Nations fighting force to replace the marines underscores that view.

So, mobilization controls are not contemplated (*also see p. 25*). The military already has authority to direct priority defense work, and the government has enough authority, officials believe now, to direct the flow of materials and commodities if any acute problem arises.

The supply of oil may be the first problem—if the Mideast crisis continues. The movement of ships and planes, obviously, will begin to strain normal reserves of jet fuel and bunker fuel. But more worrisome to Washington officials is the prospect that any sabotage or cutting off of Mideast flow will again demand that the U. S. provide Western Europe with emergency supplies. The government is prepared to ask oil companies to reactivate the committee that was set up during the Suez crisis to handle the problem.

•

Congress will bolster the President on foreign policy issues. It's almost axiomatic that whenever the country gets into an international problem, the President's power increases and Congressional opposition diminishes. Observers here see that happening on two major pieces of legislation:

The reciprocal trade bill—finally—will be closer to what the Administration wants than what the Senate Finance Committee had recommended. The bill that the President gets will be clean of any significant restrictions. The betting is that the extension will be for four years, as asked for, with at least 20% tariff-cutting authority—without the Senate committee provision requiring Congressional approval for the President to turn down escape-clause proposals of the Tariff Commission.

The foreign aid appropriation will be handled less harshly. The Administration is confident the Senate will restore most of the $800-million cut that the House of Representatives made in the appropriation. Final expected figure: more than $3 billion.

•

Congress is pushing a major speedup in pollution-abatement work. The House Public Works Committee last week approved legislation to double—to $1 billion spread over 10 years—federal construction grants for municipal sewage treatment plants. Backers are hopeful of House approval, but figure that chances of Senate passage are about 50-50. If passed, the White House will sign the bill, despite early plans to kill the federal aid program outright, turning it over to the states next year.

The measure would benefit larger cities and suburbia—even if

Washington Newsletter

(Continued)

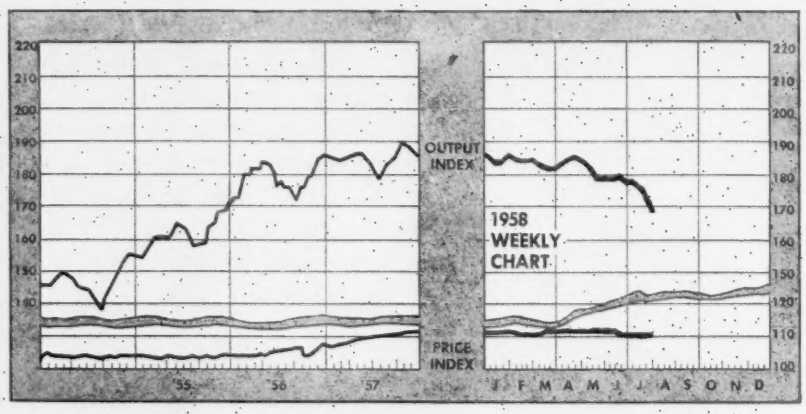
Congress fails to follow through with the actual money that would be authorized this year. The legislation would double maximum project grants to $500,000—but only projects in the million-dollar-plus range stand to benefit much from this. It also would allow suburbs to pool funds to build one plant for all.

•

A nuclear-powered sea water conversion plant is the objective of a feasibility study to be made by The Fluor Corp. (Whittier, Calif.) under a $100,000 contract awarded by federal-state agencies this week. The Interior Dept.'s Office of Saline Water is putting up $60,000 and California's Water Authority $40,000 to learn if such a project—with 10-20 million gal./day of fresh water output—could be made competitive through sale of by-product steam-generated electricity. Fluor will look mainly at a nuclear reactor tied in with a water distillation plant with a combined estimated cost of $60 million plus.

W. L. Badger's distillation unit will figure prominently in the study—it's the best bet, according to OSW and California congressmen, of the five basic water-conversion processes under study. This week, OSW signed up the University of Michigan to do basic research on "formation and elimination" of scale deposits, chief drawback of the Badger still.

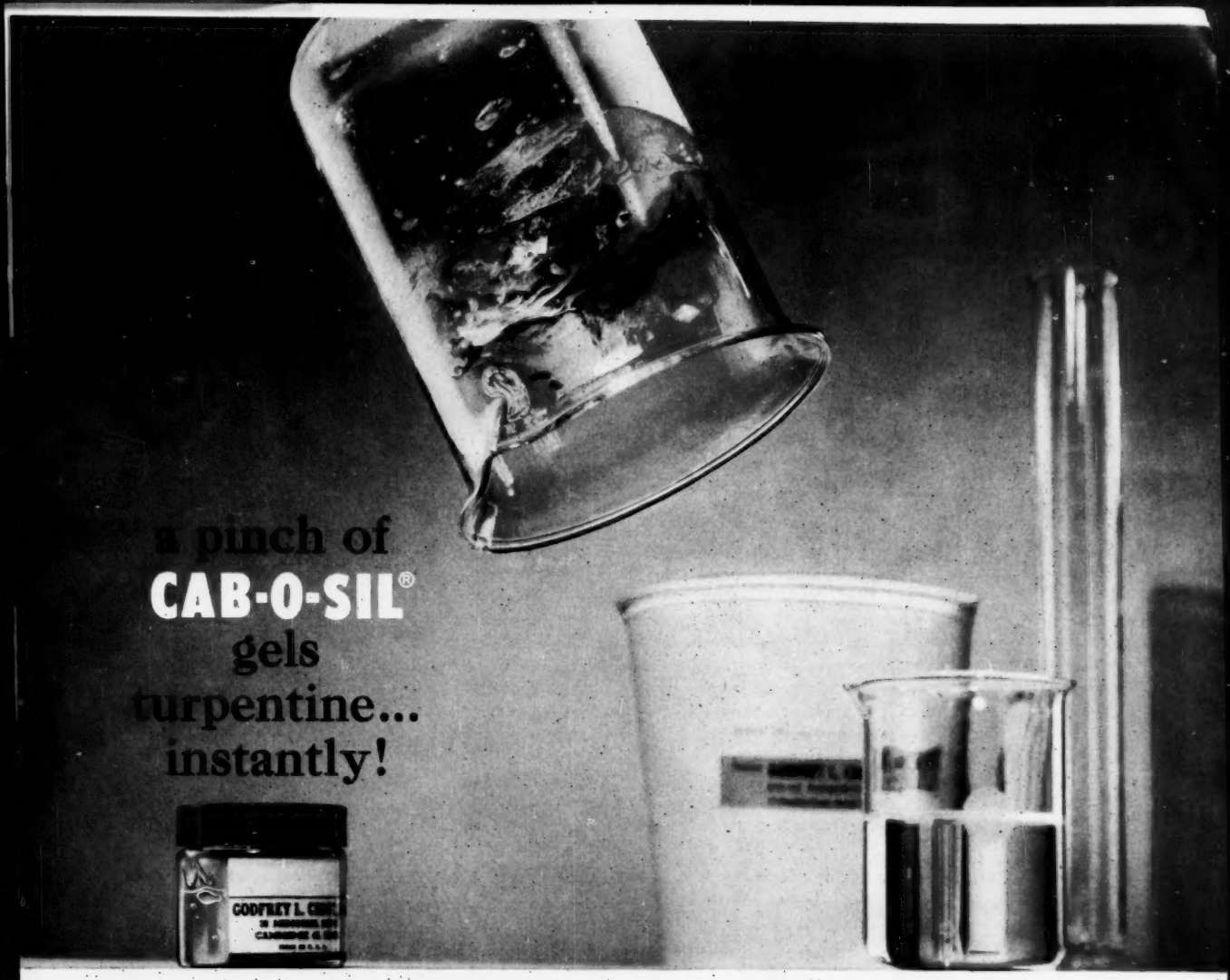
The federal agency has high hopes, too, for the ionic membrane process (now being sold commercially); this week, OSW purchased newly developed experimental ionic membrane equipment from Netherlands Central Technical Institute to carry on basic research work.



Business Indicators

WEEKLY	Latest Week	Preceding Week	Year Ago
Chemical Week output index (1947-49=100)	169.0	168.0	178.0
Chemical Week wholesale price index (1947=100)	110.6	110.6	110.4
Stock price index of 11 chemical companies (Standard & Poor's Corp.)	40.73	40.39	46.70

MONTHLY Wholesale Prices (Index 1947-1949=100)	Latest Month	Preceding Month	Year Ago
All commodities (other than farm and foods)	125.3	125.3	125.2
Chemicals and allied products	110.6	110.8	109.3
Industrial chemicals	123.5	123.9	124.0



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PRODUCTION

Teamwork Fits Centrifuge for New

Take it from the De Laval Separator Co.'s engineering team (shown below): fitting centrifuges into modern processing presents some tough problems. Besides finding processes where the centrifuge might work, they must often revise the process to the centrifuge. These problems face them now, as they launch a new unit.

Right now, the new unit is under test for removing water from jet fuel (*CW Technology Newsletter, June 28, p. 52*). But De Laval has its eye on other applications for this and other new units—and to speed their entry into processes, De Laval is not only turning its own engineers loose on problems at its pilot plant; it's also welcoming engineers from process firms who want to check out applications before they try the units at their home plants.

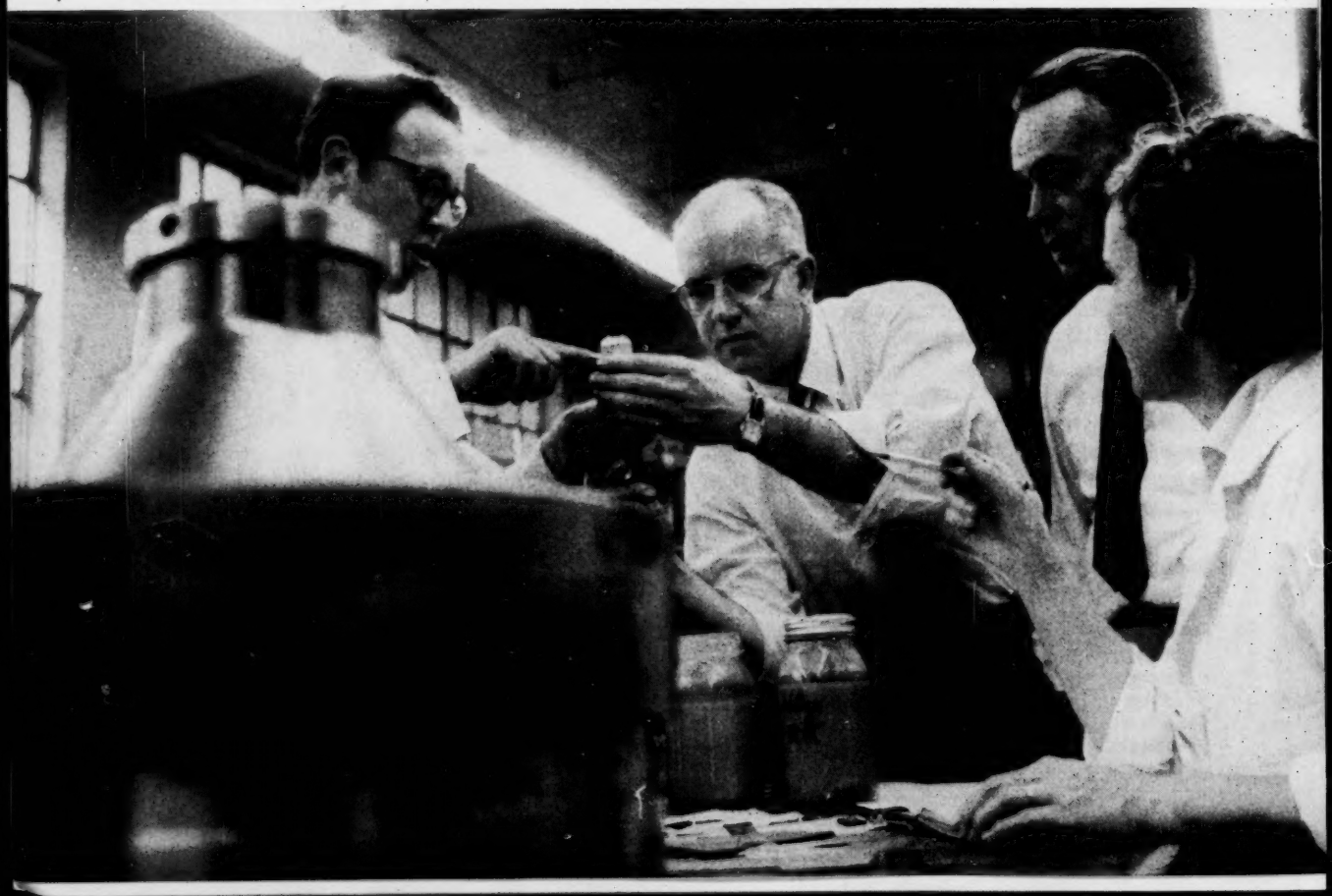
"Often, where a centrifuge won't work when placed into a process, both centrifuge and process are at fault," says Frank Sullivan, manager of the industrial division of De Laval's engineering department, explaining the set-up. All types of processing can't be handled, of course. But the pilot plant is designed for continuous processes that involve mixing, product additions, heat exchange, centrifugation, pumping and drying. And the pilot plant can be operated at pressures up to 100 psi.

Tailoring Plus: And, this process and equipment tailoring, in some cases, have led beyond process modernization to entirely new processes. De Laval's tall oil process is an example. In cooperation with Newport Industries Co., De Laval first developed a semi continuous process, keeping the old, widely used batch acidification of black-liquor skimmings and using a continuous nozzle-type centrifuge for separation. De Laval then carried the development further on its own, developed a system for continuous acidification, too. And when this completely new system was supplied to pulp mills, the nozzle-type centrifuge was modified to eliminate screening operations. The process was still further altered at sulfuric acid-chlorine dioxide pulp bleaching mills to permit acidification with waste sulfuric acid.

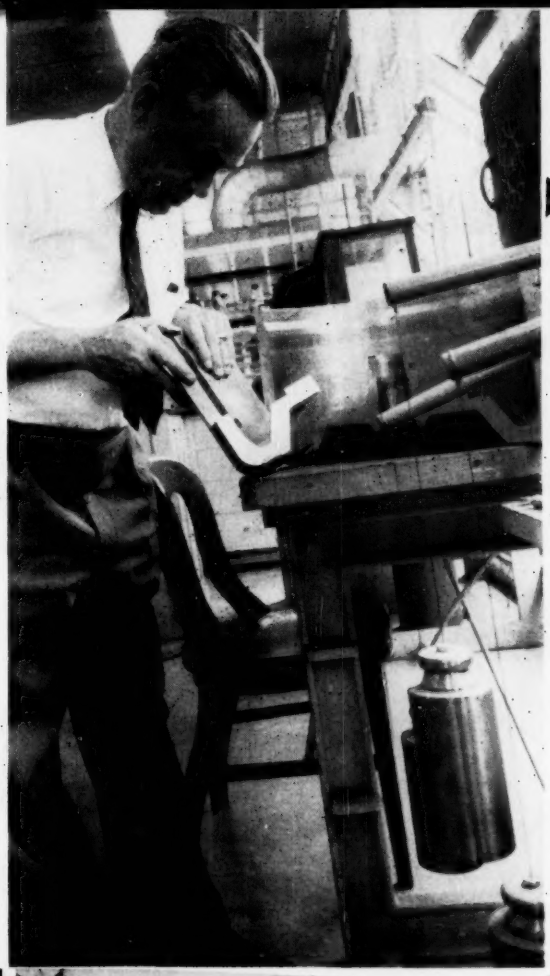
Both process and equipment tailoring have been a part of the engineering department at Poughkeepsie for some time. Many of the original designs come from the parent company in Sweden, Alfa-Laval, where the continuous centrifuge was developed. Corrosion testing under the actual operating conditions in this country is a continual program, of course. For this program on improved corrosion performance, De Laval has fabricated a titanium centrifuge bowl for the unit.

At the present time, the controls of the Swedish-designed, self-cleaning

De Laval's engineering team discusses test sample with Dept. Mgr. Frank Sullivan (with sample).



Jobs



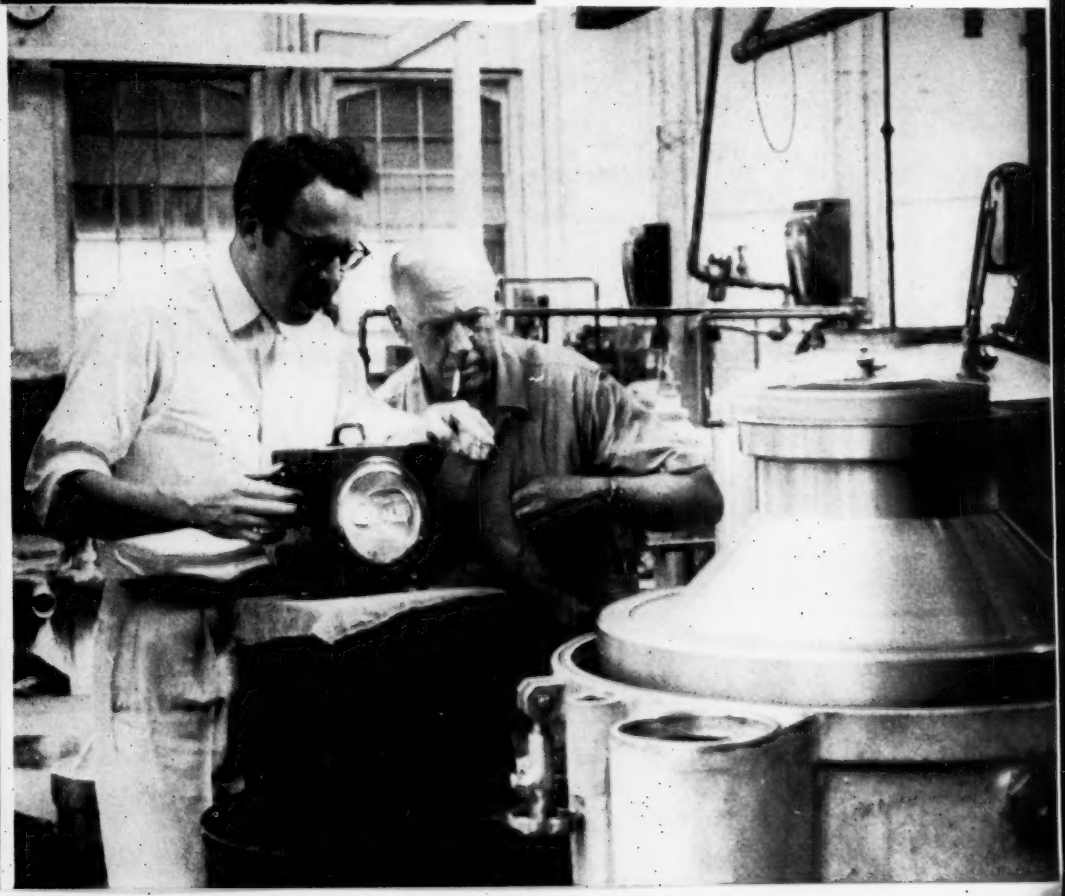
Andy Mergot prepares test bowl for stress corrosion check.

centrifuge are being modified to meet operating conditions that are more typical of this country. In the machine, solids are built up over a preset time interval, then ejected in a 2- to 10-second period, while the machine is running, by hydraulically opening and closing the bowl. Controls are being simplified so that the centrifuge will require less attention. And the time cycle is being shortened so that the quantity of solids handled can be increased.

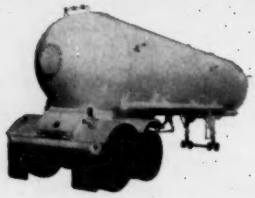
The relatively low capacity of most continuous centrifuges has long been a drawback. Until recently, few continuous units have operated above 100 gpm., most considerably lower. But the trend to higher capacities is on. De Laval now has some units that will operate in the 200-400-gpm. range. And Sharples Corp., the company's largest U.S. competitor, has jumped capacities from two to five

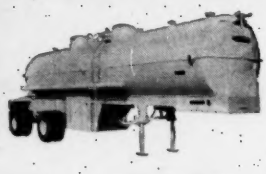
Dick Erikson (left) checks balance of jet-fuel unit at high speed.

CW PHOTOS—LIONEL CRAWFORD

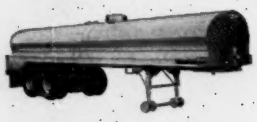


Trailmobile builds tank trailers to haul liquids or bulk commodities.

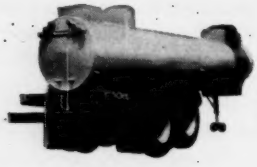
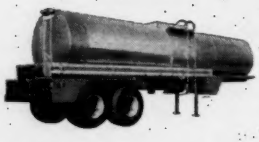
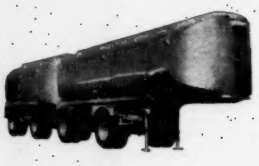




These trailers are designed to carry fluid or viscous liquids . . . to over



overcome liquid surge and load stress problems . . . to keep commodities

conveyor . . . to meet with load or axle laws and design codes—in short,

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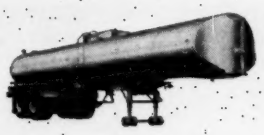
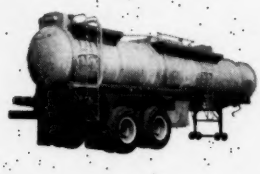
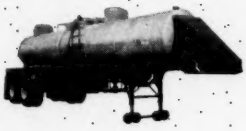


come drainage, cleaning, contamination or sanitation problems . . . to



warm or cool in transit . . . to discharge via gravity or pressure, or screw



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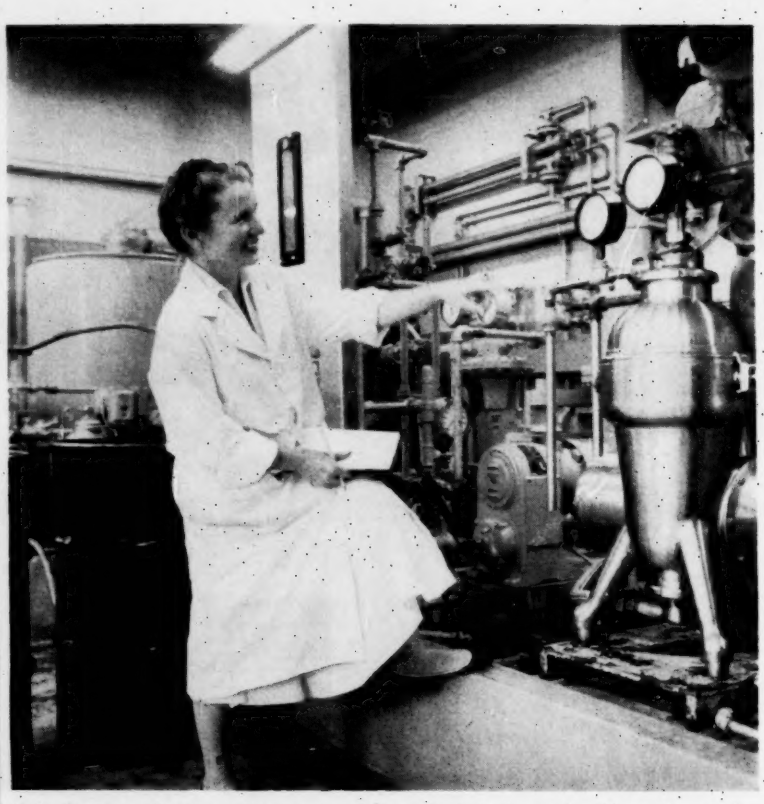

Lois Crauer checks out test run of material through pilot plant.

times to within the same range.

Pressures Up: Pressure operation, —in which feed is introduced, separated, discharged under pressure—in addition to high capacity, is a trend in the continuous centrifugal manufacture that is beginning to draw the attention of the chemical industry. Pressure-type continuous centrifuges have been around for a number of years in the dairy industry. But they had rubber seals, were impractical for chemical service. And, although De Laval developed special carbon-ceramic seals for chemical service several years ago, centrifuge capacities were low—about 20 gpm.

The chemical industry's need for a combination of pressure operation and high capacity was brought home forcefully a little over two years ago. Phillips Petroleum, seeking a unit to recover its polyethylene catalyst, found only one firm with a suitable high-capacity unit. This was Merco, one of the smaller centrifugal makers, now a part of Dorr-Oliver. It adapted its high-capacity, nozzle-type continuous centrifuge for 150-gpm., 110-psi. service in separating catalyst in the Phillips process. Over 30 Merco units have now been sold for polyethylene by D-O and 14 have been put into service.

Since the Merco polyethylene success, De Laval and Sharples have been developing high-capacity units for 150-psi. pressure operation.

And De Laval's Sullivan predicts that within the next five years, few continuous centrifuges will be offered without the option for pressure-type operation. He points out that pressure operation eliminates explosion and fire hazards, prevents product foaming emulsification and drying, results in generally better separations and a more compact operation (no provisions are necessary for reducing, then raising, pressures merely for centrifugation).

With the exception of polyethylene production, high-capacity, pressure-type applications for the continuous centrifuge have yet to develop. But Dorr-Oliver has six pilot-size Merco units (1-20 gpm.) under test at chemical and petrochemical plants. And De Laval is counting on its pilot-plant team to help developments.

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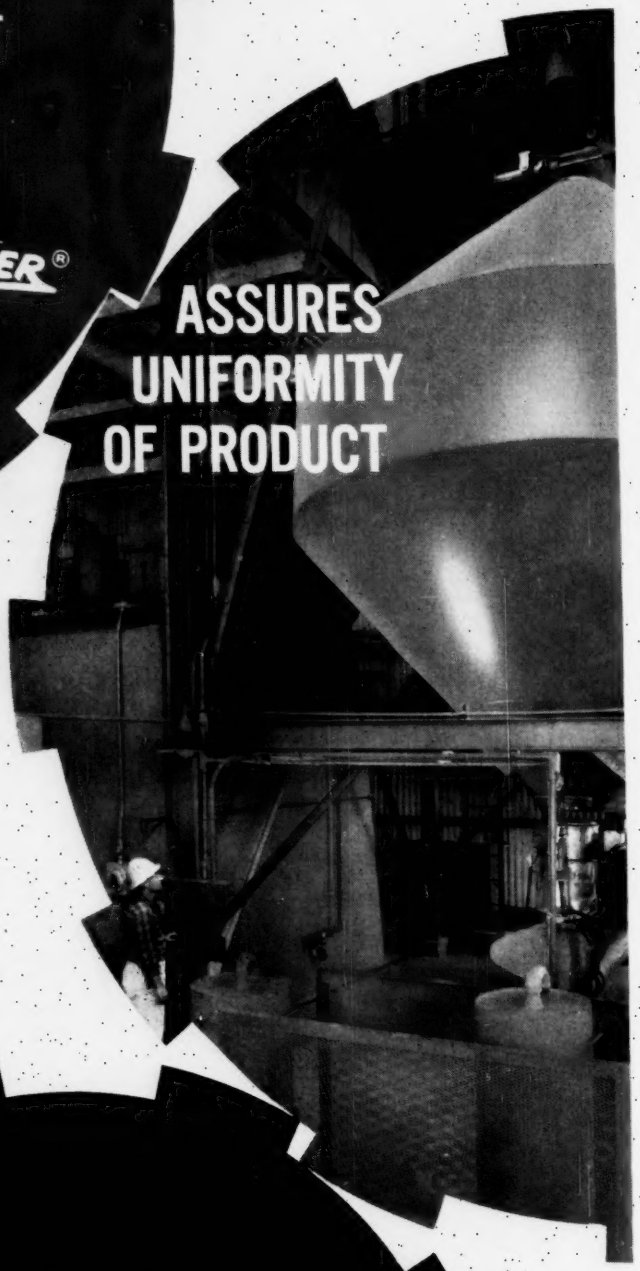

In the world's largest plant of its kind, W. R. Grace & Co.'s brand-new, high-density polyethylene GREX is blended in this single, 16-foot diameter Patterson ThoroBlender to achieve maximum uniformity. Air-fed from storage bins to the giant machine, the poly pellets touch only stainless steel as they are rapidly blended to a completely homogeneous, top quality product before packaging. ● Do *you* have an exacting blending requirement? Regardless of scale, from laboratory-size to carload lots, check PATTERSON!

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Idle British Plants Invite U.S. Investors

Courtaulds, Ltd., British-based international giant of the man-made fibers industry, wants to diversify. That's the upshot of an announcement made to the firm's stockholders last week by Board Chairman Sir John Hanbury-Williams.

Much of Courtaulds' diversification will be made with the company's own vast resources. But to further implement the program, Courtaulds is sizing up its manufacturing facilities, service organizations (research, engineering, legal, and the like), and markets in Britain and elsewhere with an eye toward initiating partnerships with American firms. The company claims that it has much to offer an American company seeking to expand in Europe:

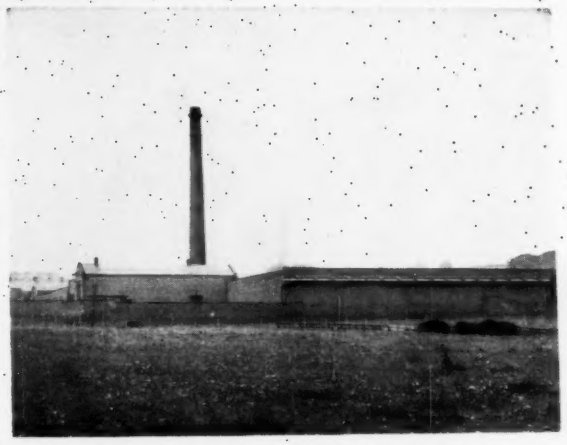
- British-based know-how and experience in legal, labor and financial matters.
- Ready-made facilities and technical resources that require shorter time for setting up production, at less cost.
- Access to an international organization well versed in export dealings.
- Entree to the sterling area, with eventual opportunities in the proposed free-trade area and "common market."

Essentially, Courtaulds is looking for firms with commercialized processes for products that will have clear-cut market opportunities in the United Kingdom or other parts of the sterling area. Best candidates are those lacking U.K. facilities—management, technical resources, buildings—to pursue the market by themselves.

Tri-point Plan: Courtaulds formulated its plan on top of a thorough analysis of its structure. It stems partly from the firm's purchase, in April, 1957, of the interests of British Celanese Ltd. Partly, the plan arises from chemical trends toward diversification. Partly, it has a base in British needs for export trade since the granting of self-rule to Commonwealth countries. Courtaulds wondered if it shouldn't diversify to better optimize production facilities.

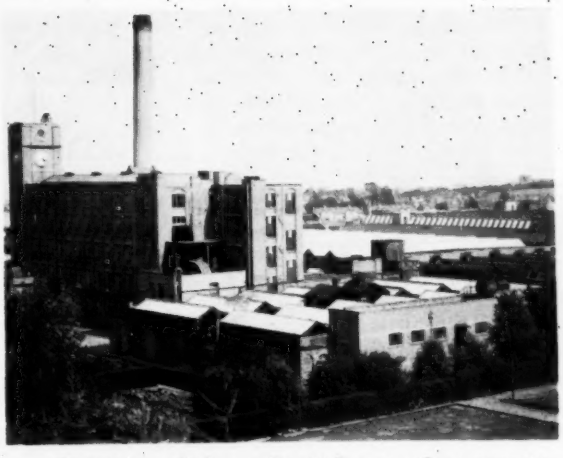
In the Celanese deal, Courtaulds picked up not only basic acetate production, but also sizable amounts of fixed assets, technology and personnel. As Hanbury-Williams has said "Our present task is to survey the Celanese organization . . . and put into effect a plan which would result in concentration of effort."

Aside from Celanese, Courtaulds turned up other areas in its self-appraisal that it hopes to use in enticing Americans abroad. In North Wales, for example, there's a shut-down viscose plant, from which all rayon equipment is being removed. The manufacturing shell that will be left can be converted readily to some other process. Considerable basic service equipment remains,



Empty plants at Great Harwood, Lancashire

. . . Dunfermline, Scotland, and



. . . Flintshire, Wales, offer U.S. growth prospects.

as well as waste disposal and water treatment facilities.

From Celanese, Courtaulds inherited engineering facilities that, added to the parent's units, present a formidable array of technology for almost any industrial process. Since World War II, Courtaulds has carried out a $224-million plant investment program, has built up an engineering staff commensurate with it. Indeed, Courtaulds personnel did the vast majority of the engineering for the expansion.

In addition, Courtaulds recently has completed research laboratories for viscose acetate and synthetic fibers that are said to be the largest such facilities in the world. These, added to Celanese-owned facilities, vastly improves Courtaulds' coverage of all phases of fiber research. Annual research expenditures for the company are $5.6 million.

Coordinator: To assess and coordinate development of all its corporate, physical, and research assets, Courtaulds has set up Group Developments Ltd., headed by A. W. Knight, a Courtaulds director.

Knight's job is to uncover and explore likely possibilities for self-development or for development with others. He was in the U. S. not long ago talking possibilities with a number of chemical firms, large and small. He has put together what appears to be a most attractive case for joint-venturing with Courtaulds.

Knight points out a number of factors underlying diversifying through British partnership. First, he says, "no one should consider that entry into Europe means immediate dividends as regards the common market." He stresses that Britishers don't see any benefits from the common market — or the projected larger free-trade area — for at least five years, perhaps longer.

Bird in Hand: What he does see as immediate are access to local and export markets, coupled with benefits of being in the sterling area with its preferential tariffs and protective trading privileges among the Commonwealth countries.

Moreover, as he puts it, "being in the sterling bloc is just about as sound preparation as you can make to prepare for exploitation of the common market, eventually. Many people believe Great Britain would find it hard to avoid some sort of trading agreement in this area, even if the so-called free-trade area should fail to develop." As to policies of the British government subject to vagaries in politics, both the Labour and Conservative parties appear to be fairly closely allied in recognizing the need for Britain to remain flexible in its foreign trade policy.

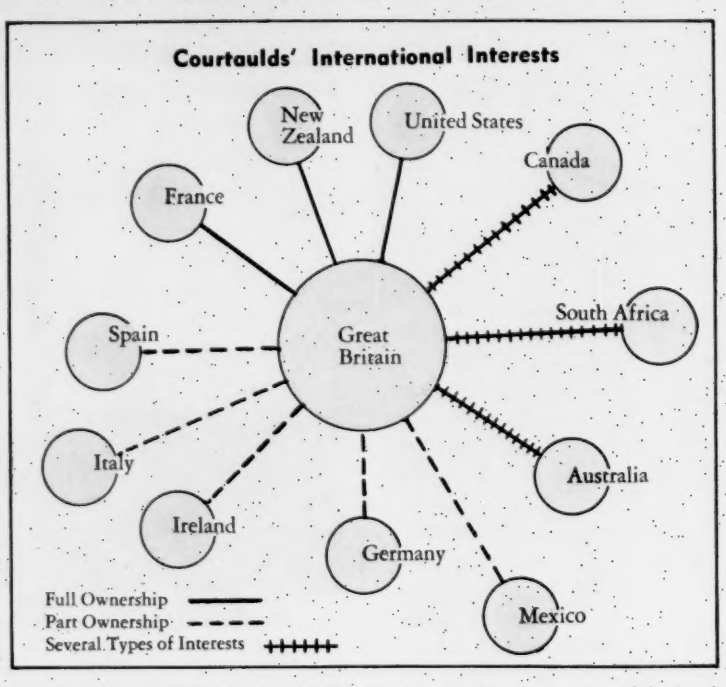
What about nationalization of basic chemical industries? Though Knight hesitates to make flat predictions of Labour party policy, he believes that nationalization is unlikely. He points out that: (1) most nationalized industry has been that with dealings only in the British Isles and is of a utility nature, (2) nationalization involving international trade raises problems that would make Labour stop and think—particularly when the industry has the international implications of the chemical industry, (3) in any case the trend in Labour party thinking has been away from nationalization.

Courtaulds Specifics: What kind of American firms would Courtaulds like to tie up with under its plan? "That's probably easier to define by exclusion," says Knight. "Since Courtaulds is already heavily in the synthetic fibers business—including nylon, rayon, acrylics, and protein fibers—there's little likelihood it would want to extend itself in this field in partnership with others. Besides, the company would like to diversify."

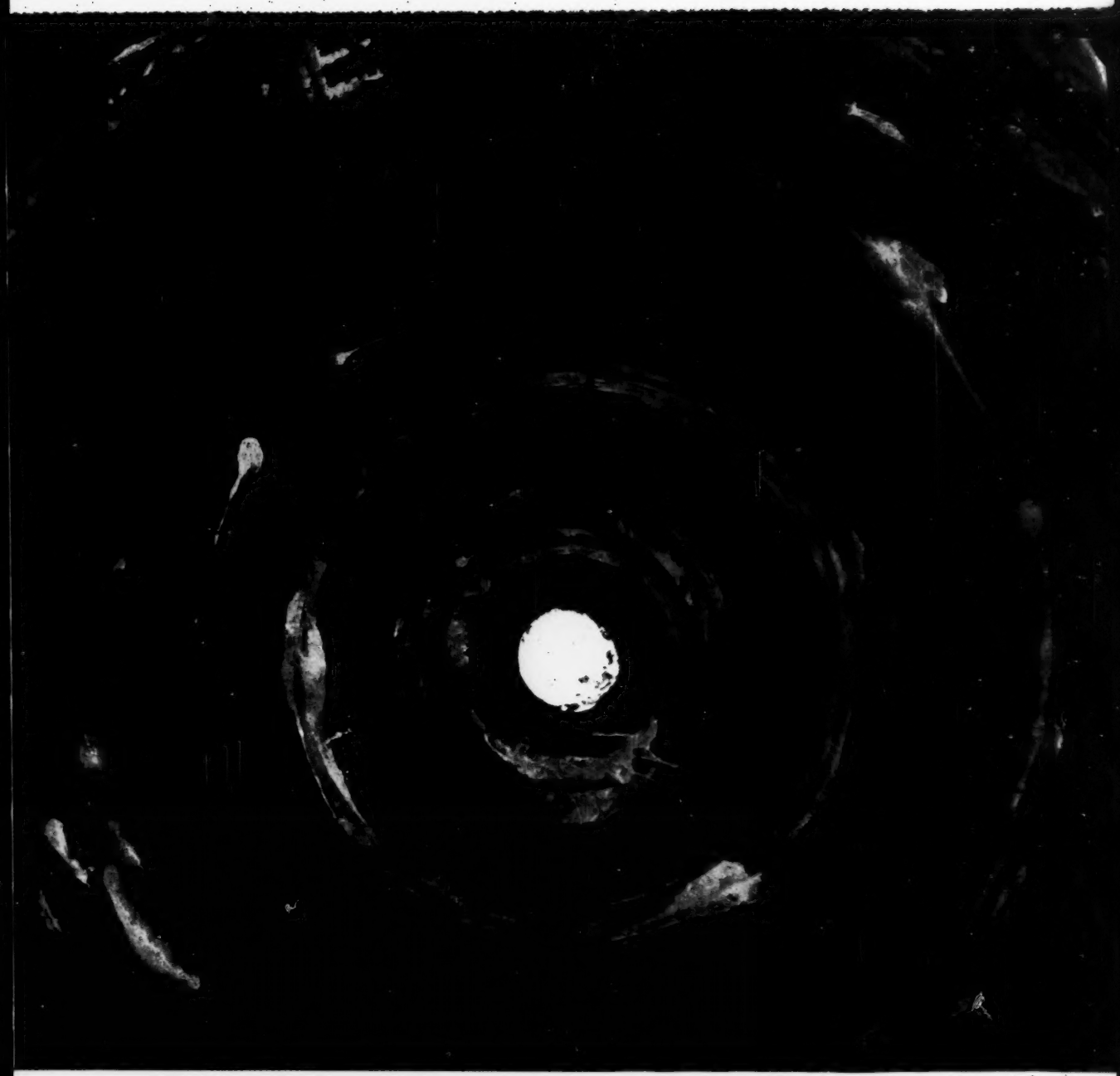
Too, Courtaulds is already well established internationally, has capital resources in many countries. As a consequence a partnership probably would be of most benefit to a moderate-sized company needing capital help and interested in developing foreign chemical markets. Good bets, according to observers, include makers of plastic resins, consumer products molded from them, organic chemicals, packaging materials, paper, paperboard, paper products.*

The firm is open as to terms. Basically it's seeking proved processes that can quickly be put on a commercial basis. And it wants a partner with commercial development know-how. As Hanbury-Williams says, "It frequently is said that in some fields the Americans are ahead of the British, and that their methods of 'putting over' a new product are better than ours."

The Courtaulds scheme, still in the fashioning stage, has one plain selling point: "Remember," Knight says, "coupling American dollars with Courtaulds know-how about operation in the Commonwealth and sterling areas, can produce sizable economies. It's often said that in plant investment one pound invested in the U.K. is worth $5 invested in the U.S.



* For further examples of such products see U. S. Dept. of Commerce, Survey of Current Business, April '57, p. 9.



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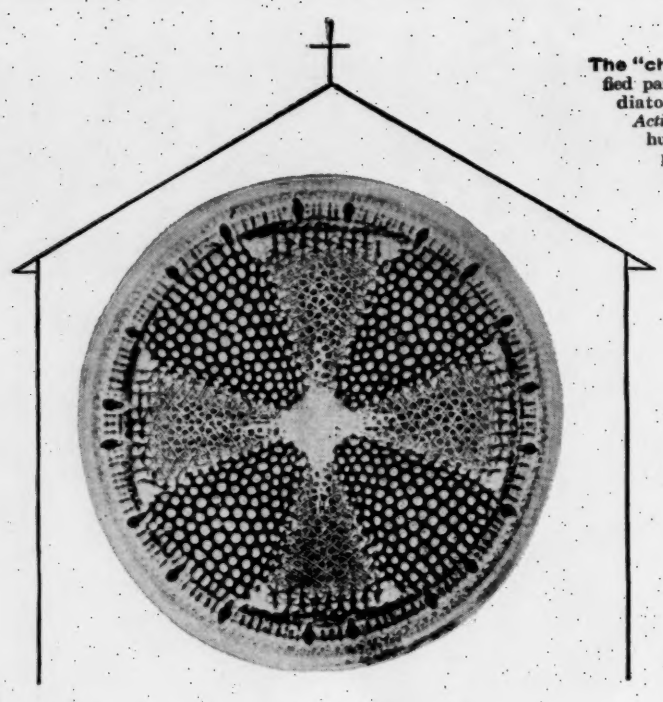

The "church window" is a magnified particle (app. 600X) of Celite diatomaceous earth known as *Actinoptychus*. It is just one of hundreds of different intricate particles that together make J-M Celite such an effective filter aid.

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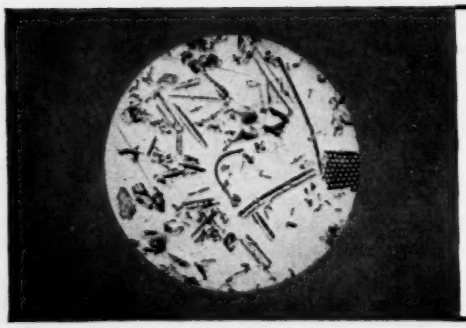

The secret of Celite diatomite's remarkable filtration properties is shown in this magnification. It reveals the open passages between particles, and the porosity of the particles themselves through which liquids flow freely. Yet these openings are so microscopic that they trap even the finest insoluble impurities.

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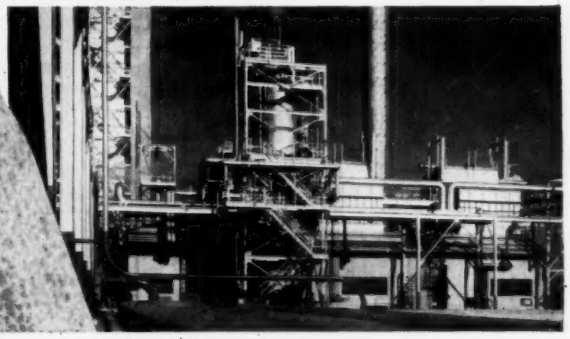

Removes oil from urea solutions. Hyflo and Sorbo-Cel, two special grades of Celite, are used by the chemical industry to filter oil from urea solutions used to make plastic grade resins.

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*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products.

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New Spevack Round Brews

The broadly significant case of Jerome S. Spevack is now entering its final and most critical round, and the outcome is likely to provide a benchmark for future relationships between individual inventors and the U. S. government.

The New Rochelle, N.Y., inventor is seeking an injunction to prevent Atomic Energy Commission from carrying out its '57 decision to make public the details of his heavy-water and deuterium process. Spevack will petition the U.S. Supreme Court for a writ of *certiorari* to the court of appeals in Washington. He wants the high court to reverse the appellate court's dismissal of the suit, and to rule on his two major claims.

Spevack's chief arguments since the litigation began are: that the Atomic Energy Act of '54 does not give AEC the authority to disclose information it would not otherwise have a right to make public and that, if the court interprets the act as giving the commission that authority, the act is in violation of the fifth amendment of the U.S. Constitution because it permits deprivation of private property without just compensation.

Earlier, when Spevack petitioned the Supreme Court for a writ of *certiorari*, both the American Chemical Society and the Engineers Joint Council filed friends-of-the-court briefs in Spevack's behalf *(see p. 21)*.

The case thus far has been lengthy and secretive. In '49, Spevack voluntarily told AEC about an improved isotope concentration process he had invented. AEC immediately classified the disclosure as security information.

In '50, Spevack filed a patent application on the improved process, but the patent grant was held up until the information could be declassified. Classification also barred him from filing for foreign patents.

In Feb. '57, AEC declassified Spevack's disclosure, rescinded the secrecy orders pertaining to it, and announced plans to make it public.

Spevack filed suit in federal district court (Washington) in April '57, seeking an injunction against the commission's action *(CW, May 11, '57, p. 50)*. He claimed public disclosure would jeopardize his opportunity to file for foreign patents.

The district court refused a permanent injunction on the grounds that the case was moot, in that public disclosure had already been made by AEC when it declassified the information. A temporary injunction was awarded, pending appeal.

Last September, a court of appeals ordered the suit dismissed, ruling that it was an unconsented suit against the government. The court failed to rule on the question of mootness. The temporary injunction remained in effect, pending appeal.

In March, the high court sent the case back to the court of appeals—without ruling on the merits of Spevack's arguments — to allow correction of technical defects.

The appellate court — corecting the defects — again ordered the suit dismissed. The decision rejected Spevack's first claim, said that the court ruled earlier that Congress had authorized the "sort of publication" that AEC proposed, and overruled Spevack's just-compensation claim.

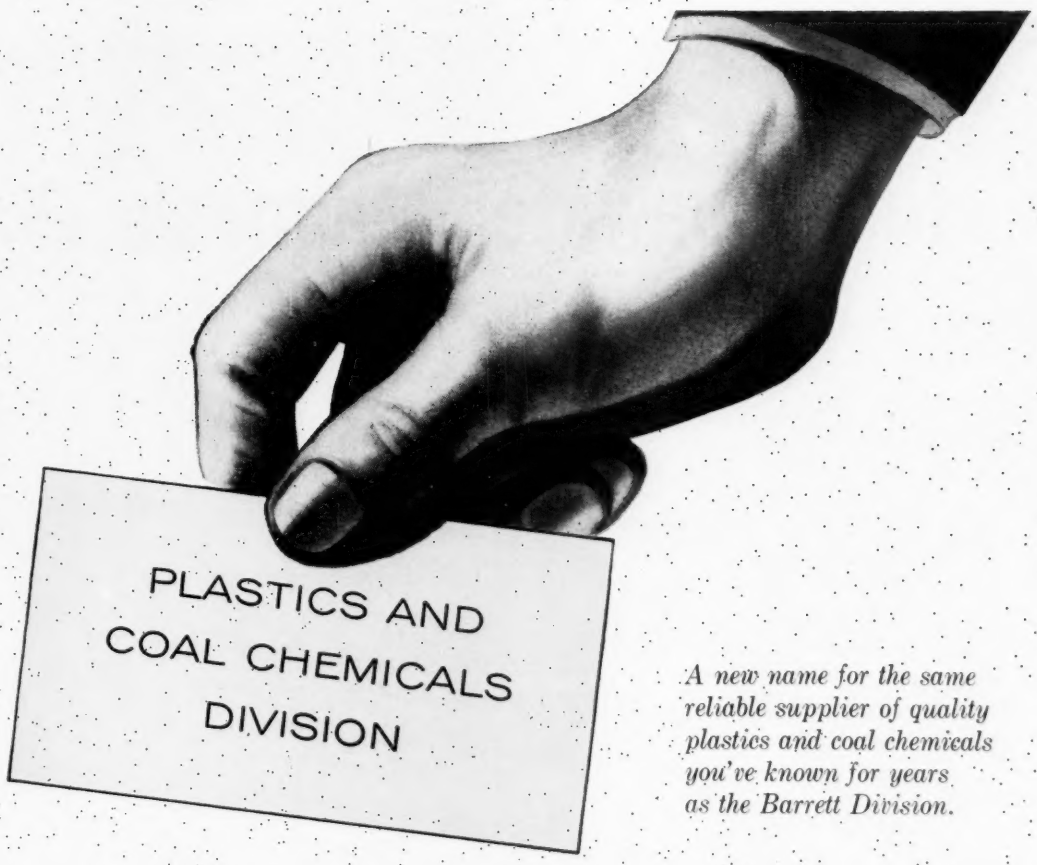
The case will likely receive consideration by the high court when the fall term begins in October. Meanwhile, the temporary injunction barring AEC disclosure remains in effect and Spevack gains valuable time in which to file for foreign patents.

LEGAL

Shave Cream Suit Decision: Colgate-Palmolive and Carter Products (both of New York) each gained a point in a split decision recently handed down in U.S. district court (Baltimore).

In a 42-page opinion that followed a two-week hearing, Judge Roszel C. Thomsen ruled that Carter was entitled to treble damages as a result of Colgate's violation of a May '55 injunction. The amount of damages was not set. Colgate was held to have violated the injunction by encouraging the sale of 1.6 million cans of pressurized shave cream. The cans were held by Colgate's customers pending the outcome of the patent-infringement suit by Carter. Colgate lost. They were then sold.

In the same opinion, Judge Thomsen found that Colgate's Palmolive



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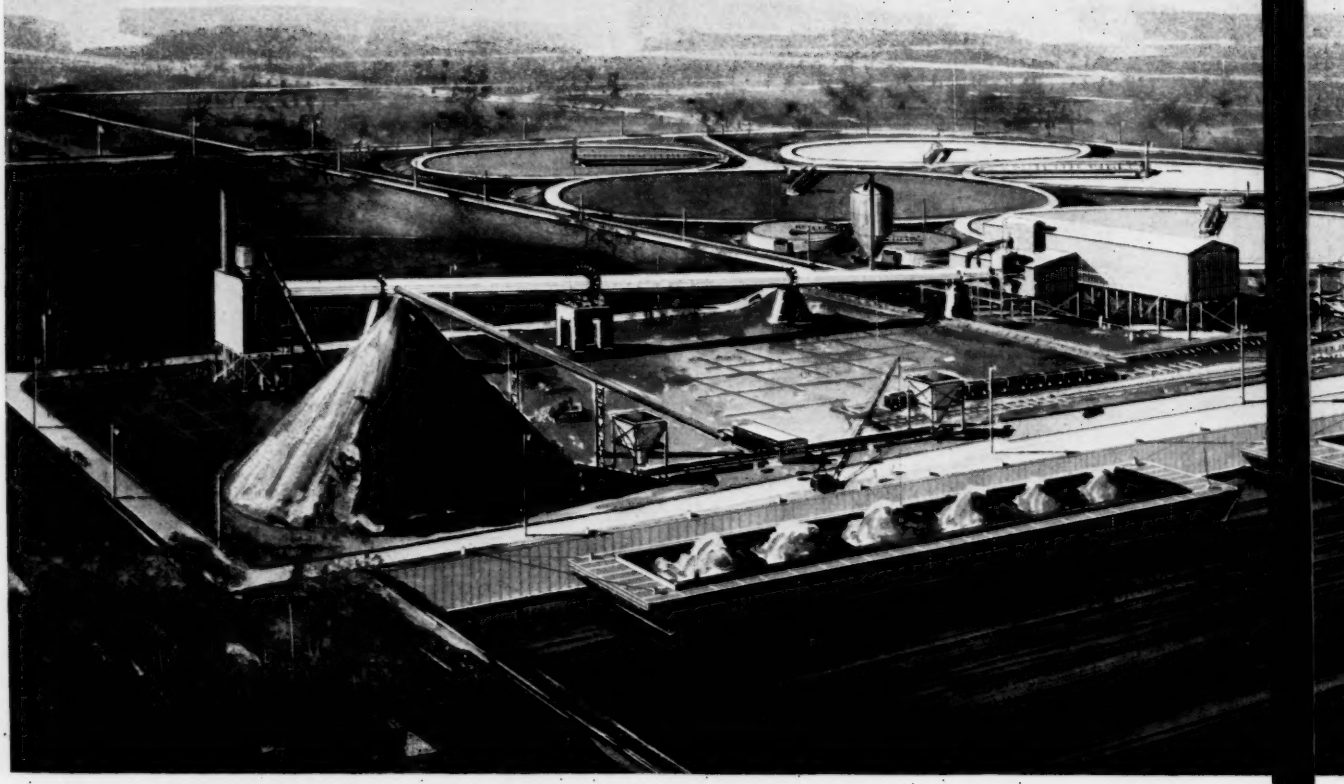
New Seawater Magnesia Plant



More high quality MgO for you

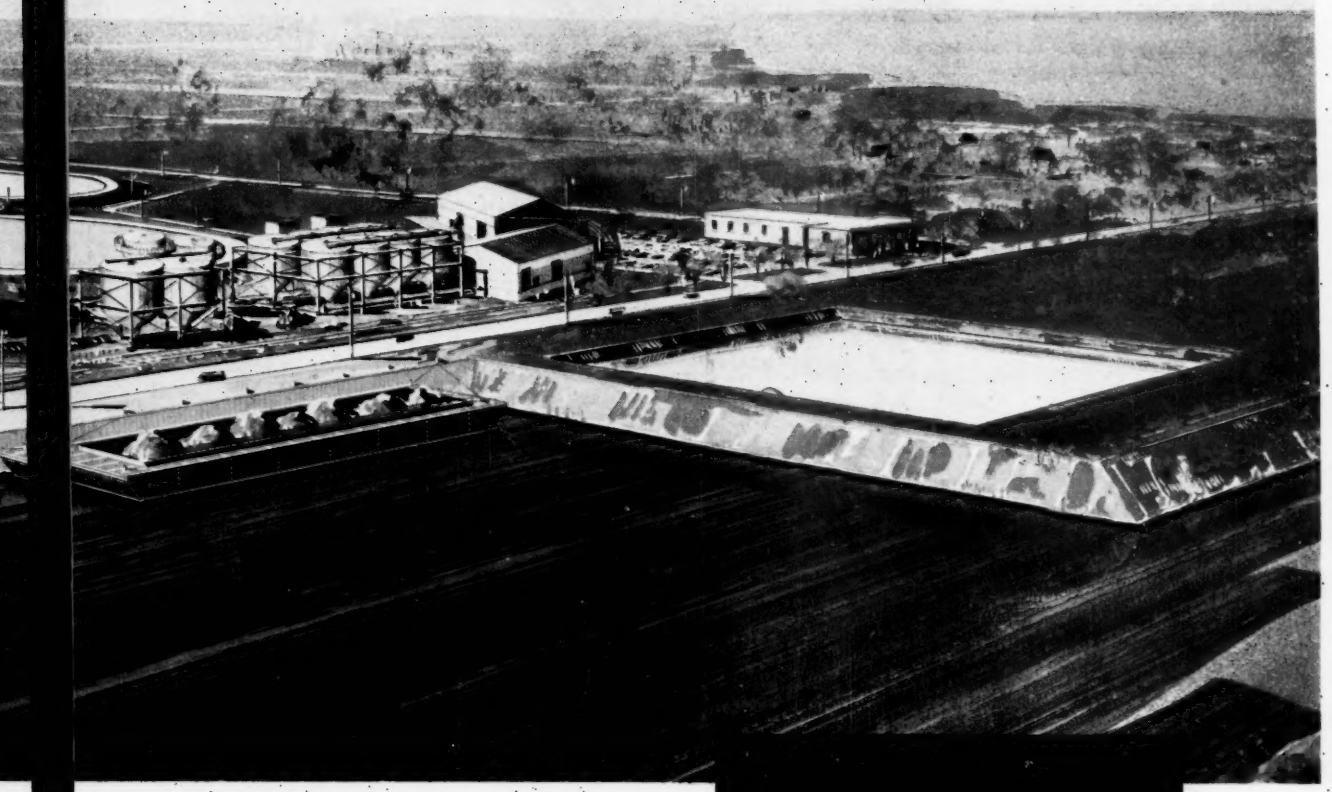
Michigan Chemical Corporation announces the beginning of construction on its new seawater magnesia plant at Port St. Joe, Florida, which will enlarge many times the company's present capacity at Saint Louis, Michigan.

The new plant will provide industry with high-purity chemical and refractory grades of magnesium oxide for use in manufacturing basic brick and other refractory products, rubber and neoprene, paper, textiles, insulation and building products, ceramics, catalysts and for many applications in chemical processes.

The new facility will have access to rail, ocean and Mississippi River barge shipping. The plant site includes land available to industries which use magnesium oxide.

The new seawater MgO plant will enable Michigan Chemical to serve industry over a wide area, augmenting extensively its Mich-

for Michigan Chemical



igan magnesia operation which will continue to produce caustic magnesias and specialties.

Write to the Magnesia Sales Division, Michigan Chemical Corporation, Saint Louis, Michigan, for data on production schedules.

M-58-3 *Reg. U. S. Pat. Off. ©

MICHIGAN CHEMICAL CORPORATION

606 North Bankson Street, Saint Louis, Michigan

EASTERN SALES OFFICE: 230 Park Avenue, New York 17, New York

Crystalline Elemental Boron...

does this newest of our boron products hold a promise for you?

Newly available in limited quantities! Crystalline Boron, with a purity of 99+%, is now ready for you as a new material for research. The sheen of Boron gives it a metallic appearance . . . but resemblance to metals ends there! In hardness, Crystalline Boron ranks very high. As a conductor of electricity, Boron has unusual characteristics. These facts suggest possible utility in the abrasive and electrical fields. We believe there are many other fields of application for this product. Do *you* have a possible use for Crystalline Boron? We hope this new companion product to our *Amorphous* Boron will aid you in your research program.

Experimental samples of Crystalline Boron can be furnished in a variety of mesh sizes. Samples are usually furnished in small chunks, about the size of a pea. Write to us on your company letterhead, directing your inquiry to our Product Development Department.

UNITED STATES BORAX & CHEMICAL CORPORATION

Pacific Coast Borax Company Division • 50 Rockefeller Plaza, New York 20, N.Y.

ADMINISTRATION

Rapid Shave and Colgate Instant Shave, as made since May '56, do not infringe the Spitzer patent under which Carter manufactures and sells Rise shave cream.

Colgate adopted its present formulas after its previous formulations were held by the courts (in '55) to infringe the Spitzer patent and embody a superfatting trade secret.

KEY CHANGES

T. B. Crowell to executive vice-president, **Paul G. Carpenter** to vice-president, research and development, and **C. M. McKay** to vice-president, production, Copolymer Rubber & Chemical Corp. (Baton Rouge, La.).

Guy L. Hollister to director and vice-president, Cutter Laboratories (Berkeley, Calif.).

Robert A. Hardt to vice-president, Armour & Co., and president of its ethical pharmaceutical division, Armour Pharmaceutical Co.

V. D. Mattia, Jr., to general manager, Roche Laboratories, division of Hoffmann-La Roche (Nutley, N.J.).

Charles J. Wiley to market development manager, Callery Chemical Co. (Pittsburgh).

Edwin M. Lavino to board chairman and **Russell N. Ward** to president, E. J. Lavino and Co. (Philadelphia).

William D. Mewhort to executive vice-president of administration and operations, Revlon (New York).

Ralph K. Gottshall to board chairman and president, **Edward J. Goett** to executive vice-president, **Edward J. Massaglia** to vice-president and general manager of the newly consolidated Chemicals Division, and **Robert J. Reilly** to treasurer and secretary, Atlas Powder Co. (Wilmington).

RETIRED

Isaac Fogg, board chairman, and **Preston W. Parvis,** treasurer and secretary, Atlas Powder Co.

KUDOS

To **Joseph C. Patrick,** consultant to Thiokol Chemical Corp. (Trenton, N. J.), the Elliott Cresson Medal of the Franklin Institute.

FATTY ALCOHOL PLANT
ARCHER-DANIELS-MIDLAND CO.
ASHTABULA, OHIO
All equipment was installed by Cunningham-Limp Company also. The large warehouse and office building (right) is a C/L design and construct project.

A Building Experience You can come by... *Easily!*

You will readily appreciate, being in the business, the considerable experience it takes to construct a chemical processing plant such as this. Especially so, when you are told that the complete responsibility, even for the installation of the processing equipment, was assumed by the builder. Such building experience can be the means by which you secure a full dollar's value from every dollar you budget for construction. Possession of it by C/L should certainly demonstrate to you that this company is fully capable of designing, engineering and building most any project you are planning—anywhere.

THESE SERVICES WILL PAY OFF FOR YOU

- Engineering analyses and reports
- Site selection—planning—development
- Plant layout
- Machinery moving
- Materials handling methods and systems
- Equipment design—purchase—installation
- Building design and engineering

- Building construction, including
  - Industrial plants
  - Warehouses
  - Research laboratories
  - Chemical process plants
  - TV and Radio facilities
  - Power plants
  - Commercial buildings
  - Railroad and Utility facilities

Another project by
CUNNINGHAM-LIMP
DESIGNERS • ENGINEERS • BUILDERS
DETROIT—TRinity 3-4000
Nationwide
Ask the owner on any project where you see this sign how he likes the way Cunningham-Limp does business.

90% of C/L's business comes from repeat orders

Do you need a new processing plant—a new factory—or office building—or warehouse—or additions to your present facilities? Whatever it is—you will find in Cunningham-Limp Company the abilities and experience to design, engineer and build it for you, and a zeal to assume the entire responsibility within our organization. And perhaps the fact that 90% of our volume comes from old customers* will convince you that we are notably capable of doing so.

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INDIANAPOLIS, 507 ILLINOIS BLDG., MELROSE 4-2392
KANSAS CITY, MO., 909 SCARRITT BLDG., VICTOR 2-8791
ST. LOUIS 6, 316 LINDELL TRUST BLDG., OLIVE 2-9200

• • • • • •

also Cunningham-Limp Co., Ltd., in Canada

* In the building business, especially, repeat orders indicate customer satisfaction. Listed here are several of the well-known corporations which have found it profitable to use C/L's design-engineer-build services at two or more "nationwide" locations. The complete list is available, of course.

ARCHER-DANIELS-MIDLAND CO.
Ashtabula, Ohio
Mankato, Minn.
Wyandotte, Mich.

CHRYSLER CORPORATION
Detroit, Mich.
Rye, N. Y.
Skokie, Ill.

EX-CELL-O CORPORATION
Detroit, Mich.
Lima, Ohio

FORD MOTOR COMPANY
*Birmingham, Mich.
*Indianapolis, Ind.
Lima, Ohio
Livonia, Mich.
Monroe, Mich.
*St. Louis, Mo.
Wayne, Mich.

STORER BROADCASTING CO.
Atlanta, Ga.
Birmingham, Ala.
Detroit, Mich.
Miami, Fla.

SUNSHINE BISCUITS, INC.
Detroit, Mich.
Grafton, Ohio
Jeffersonville, Ind.
Omaha, Nebr.
Pittsburgh, Pa.

*designed by others

Send For The C/L Book—if you want 58 pages of help and information on building-engineering problems. It shows some cost-saving methods and many of the details that go into make wise building decisions. Request it on your business card or letterhead, please. It will be sent by mail.

STAN OSBORNE . . . . . .

Olin Mathieson's Reorganization Man

A penetrating sketch of the president of Olin Mathieson Chemical Corp., the "quiet ball of fire" whose task it is to integrate the most diversifed "chemical" company.

"FROM a corporate view," says a close business associate, "Stan Osborne is probably the best man in the world to be heading up the company at this time. He's a 'hound' on economy and efficiency, on inventory problems, on operating expenses."

Subject of these remarks is Harvard-educated, 53-year-old Stanley de Jongh (pronounced dee Yong) Osborne, who recently completed his first year as president of big, diversified—from nuclear fuels to vitamin pills—Olin Mathieson Chemical Corp.

To graying, unhurried, Stan Osborne—described by some as a "quiet ball of fire"—falls the task of knitting this hydra-headed creation into a closely integrated corporate organism.

Osborne's background is finance, and his approach to the management of a large company gives evidence of the financial man's hearty regard for tight management, production efficiency and minimum operating costs.

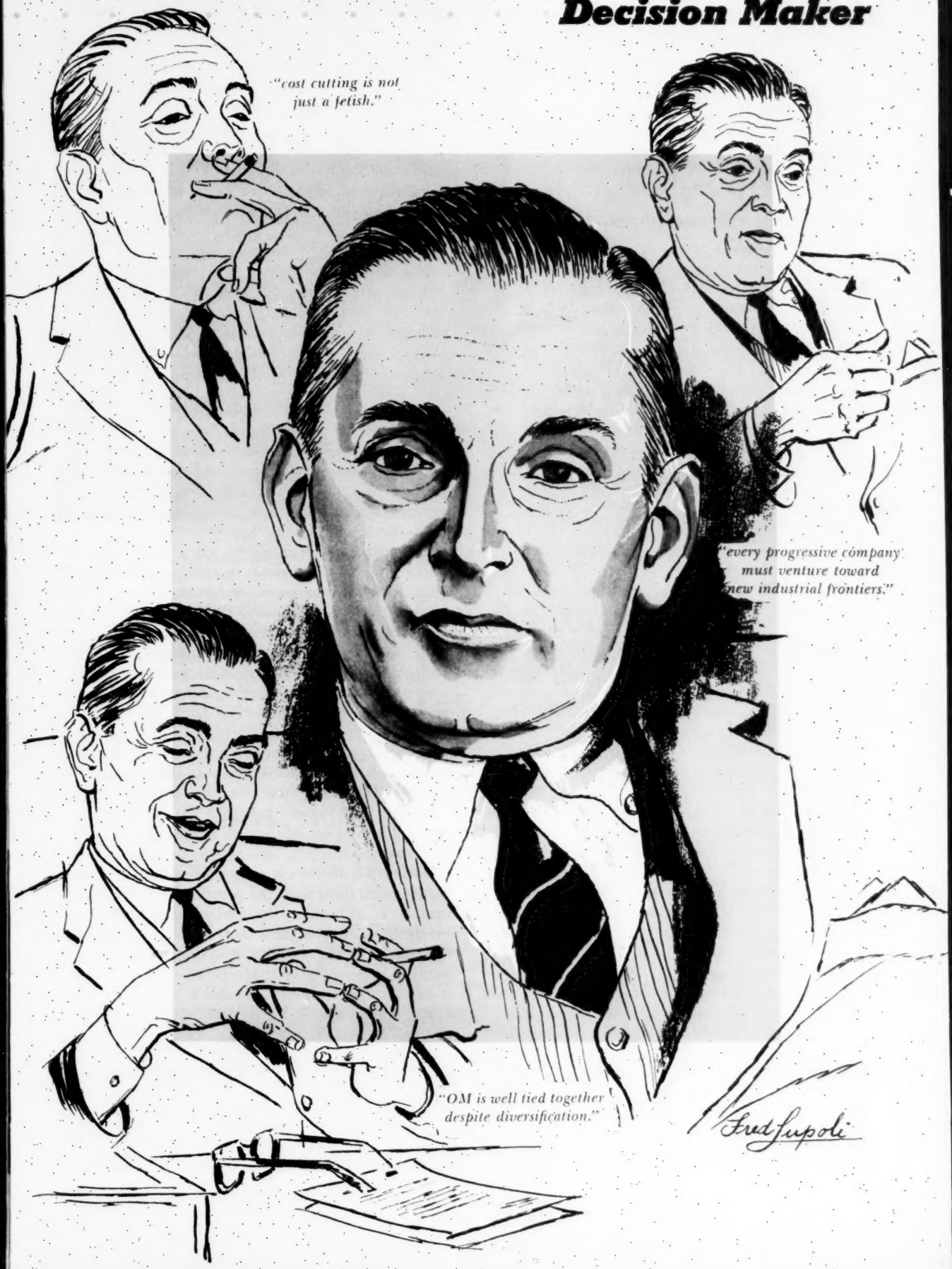
"Every progressive company must venture toward new industrial frontiers," he has stated, "but we will never relax our efforts to make existing facilities larger, more efficient, and more profitable."

On another occasion, he has said, "Cost cutting is not just a fetish. It is an essential. We must improve production methods, materials, everything."

A terse, "Turn out aluminum at the lowest possible cost," was his charge to the management of Ormet Corp., formed to handle the joint Olin Mathieson-Revere Copper alumina and aluminum venture.

The $60 million worth of 5½% subordinate convertible debentures sold to the public at par in November of last year was the result of finance-conscious Osborne's recognition of OM's pressing need for capital. The funds aren't earmarked for any single program or expansion. "Growth of the cor-

Decision Maker


"cost cutting is not just a fetish."
"every progressive company must venture toward new industrial frontiers."
"OM is well tied together despite diversification."
Fred Lupoli

poration and particularly OM's more than $300-million entry into aluminum production," says Osborne, "made it advisable to add to working capital."

High-energy fuels are one of the "new industrial frontiers" OM is pioneering. The company recently started up its $4.5-million alkyl boranes plant (for the Navy) at Model City, N.Y. (*CW, May 17, p. 23*).

THE ORGANIZER

To date, Osborne's ability as an organizer and administrator has been tried and found more than adequate in: (1) revitalizing a failing fishery business, (2) streamlining a wartime government agency, (3) helping to operate a major airline, (4) expanding Olin Mathieson's worldwide operations to a $650-million/year sales record.

In the past year, he has made appreciable progress in tightening staff and line functions, problems left over from the Olin-Mathieson merger four years ago. Osborne has created his own staff of experts, made up of vice-presidents in the key areas of administration, finance, marketing, production and engineering, and research and development.

And last month he completed an integration program that consolidated OM's 14 operating units into seven industrial divisions (*CW, June 21, p. 26*).

These divisions have considerable autonomy. "Keeping centralization to a minimum," Osborne has repeatedly said, "allows us to get the job done more quickly, at lower cost and higher profit."

The mantle of "decision maker" drapes well on Osborne's slight frame. But on decisions affecting the corporation's long-range financial and growth planning, Osborne doesn't run the show all by himself.

He is but one member of OM's powerful four-man financial and operating-policy committee. The FOPC, which exerts a strong advisory influence on the corporation's 10-man executive committee, includes the pre-Osborne triumvirate of John Olin (chairman), John Hanes (who serves the company as a consultant since his '57 semiretirement), and OM Board Chairman Thomas Nichols. These three laid the groundwork for OM as it is today. They are the men whose circle Osborne joined in May '57, when he stepped up from executive vice-president for finance to succeed Tom Nichols as president.

OM today is a corporation comprising 40,000 employees, 56 plants in the U.S., and a total of 50 manufacturing subsidiaries, affiliates, and licensees throughout the rest of the world. How it got this big and diversified helps define the problem facing organizer Osborne.

Olin Industries, formed in the early 1890s, originally engaged in the manufacture of explosives and ammunition. In '31, it acquired Winchester Repeating Arms Co., making Olin a top manufacturer of sporting arms and ammunition and, later, a major supplier of small arms in World War II.

Broad experience in cellulose-based explosives and cellulose chemistry generally, led Olin into cellophane production (under Du Pont licenses). In '49, the company acquired Ecusta Paper Corp. at Pisgah Forest, N.C., where Olin was to build its first cellophane plant. Need for raw materials for cellulose operations led to acquisition, in '52, of Frost Lumber Industries, which owned about 435,000 acres of timberland.

Later, Olin joined with Mathieson Chemical in forming Matholin Corp. to turn out hydrazine. Olin also enlarged its metal fabricating division (established shortly before World War I) to include aluminum products.

RAPID DIVERSIFICATION

Until '48, the year Nichols became president, Mathieson Chemical was primarily a regional alkali producer. From '48 until the Olin-Mathieson marriage, the company rapidly diversified into fields the new president regarded as "more depression-resistant" than its earlier limited product line.

Expansion and development led it into a broader position in basic inorganic chemicals, production of natural-gas-based organics, fertilizers, pesticides and other agricultural chemicals, and into the profitable drug manufacturing business.

In '49, Mathieson acquired Standard Wholesale Phosphate Co. and Southern Acid and Sulphur Co., Inc., complete with marketing organizations, to become an important sulfur producer and distributor of sulfuric acid and high-analysis fertilizers. This deal increased the company's facilities for converting its own ammonia into solid fertilizers. In '50, the year Osborne cast his lot with Mathieson, the company organized (with Tennessee Gas Transmission Co.) Mathieson Hydrocarbon Corp. to get inexpensive natural gas for petrochemicals.

During '51, Mathieson swung a favorable deal (no capital investment) with the government to lease and operate a $74-million ammonia-methanol plant at Morgantown, W. Va., at a time of national ammonia shortage. (The corporation is now completing arrangements to cease activities at Morgantown.)

After merger with E. R. Squibb & Sons ('52), and minor acquisitions ('53 and '54) that expanded the company's interests in basic pesticide ingredients and concentrates, and in the packaging of antifreeze and other automotive specialties, Mathieson's sales were some 700% higher than they had been six years earlier.

It was this record that attracted the attention of John Olin. To his long-time friend, Tom Nichols, Olin

Flash! Zirconium licks corrosion for control valves in chlorine service

Zirconium stems in process control valves are now being used in liquid chlorine service to eliminate costly downtime and maintenance expense caused by corrosion of conventional materials. Zirconium has demonstrated from 4 to 20 times longer life than type 316 stainless steel, and has proved superior to titanium and the high nickel and super alloys.

Engineers at Columbia-Southern Chemical Corporation, alert to corrosion-resistant possibilities of zirconium, tested it in actual operations for over two years.

Columbia-Southern has now standardized on zirconium stems, flanged packing glands, and hold-down nuts and bolts for all control valves in chlorine service.

Look at corrosion with zirconium in mind. Zirconium offers you the same opportunity to combat corrosion. Zirconium is now available in quantity and Columbia-National, through its technical service facilities and resources, will help you achieve economies in your processing operations by using zirconium to solve specific corrosion problems. Write for bulletin on properties and uses.

Valve stem above, of conventional stainless steel, failed after only six months, causing expensive downtime and maintenance.

This control valve with a zirconium stem continues to operate dependably after two years of service at the Columbia-Southern Plant at Natrium, West Virginia.

Columbia-National Corporation

Jointly owned by National Research Corporation and Columbia-Southern Chemical Corporation

DEPT. CS-G — 70 MEMORIAL DRIVE, CAMBRIDGE 42, MASS.

NEW METALS FOR INDUSTRY *On*

What's new in processing chemicals?

News has a cash value for the chemical processor. Whether it's about new products or new applications for familiar products, this news can make the difference between keeping ahead of competition and having to catch up with it. This series of chemical news notes is designed to help you keep products, processes . . . and profits up to date.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

Route to:

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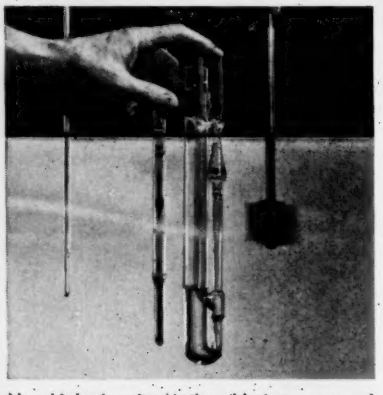
BIG STIR FOR BETTER SOLUTIONS CREATED BY 3 NEW METHOCEL PRODUCTS

Production managers are looking eagerly over the shoulders of their research chemists these days and nights as they work overtime to get the most out of three newly announced Methocel® (Dow methylcellulose) products.

These three new products expand the already unequalled Dow line of synthetic gums (industry's widest), making available viscosities ranging from 10 cps. to 15,000 cps. Together with new techniques for putting Methocel into solution, they promise to open whole new areas of profitable use for these water-soluble, non-ionic gums.



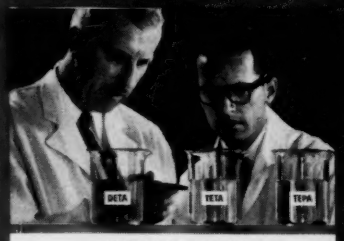
New high-viscosity Methocel being measured with pinpoint accuracy with Ubbelohde viscosimeter

Reports are coming in from textile, paper, food and paint laboratories all over the country.

Here's what they're saying about . . .

METHOCEL 60 HG — "Better organic solubility and compatibility than other water-soluble gums yet still retains its water solubility." "Great for industrial paint removers, alkyd modified latex paints and coatings that must lay down a film from an organic solvent for fast drying." "Can be plasticized and made thermoplastic to heatseal coatings." "Better emulsifier and emulsion stabilizer because it's more surface active than other water-soluble gums."

DOW CHEMICALS . . . EXCITING

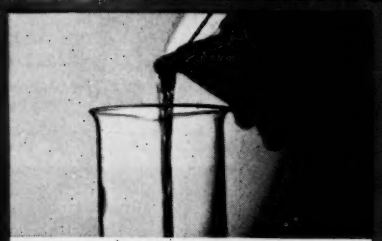


ETHYLENE AMINES

Three higher amines offer challenging potentialities as intermediates: Diethylenetriamine, triethylenetetramine, tetraethylenepentamine.

GLYCERINE

Expanded production facilities furnishing uninterrupted supply of three grades, synthetic, USP and USP 99.5%—all of unexcelled purity.



POLYPROPYLENE GLYCOLS

Polypropylene Glycol P2000 RG is but one of six resin grades that assure users exact degree of firmness or hardness in polyurethane production.

METHOCEL 70 HG—"Exceptionally good for industrial emulsions such as asphalt and other petroleum based types."

METHOCEL 90 HG—"Completely solved our problem of thermal gelation." "No gelling at temperatures below 90°C. (194°F.) . . . at last we can take advantage of the non-ionic, surface-active and film-forming properties of Methocel."

METHOCEL 90 HG, 15,000 cps—"Very low concentrations of this high viscosity product gives us efficient thickening. Should result in substantial savings."

These reports have a familiar ring to the people at Dow. That's because they read like chapter and verse from the newly published Dow handbook on Methocel. This 60-page package of facts shows the versatility of Methocel as a thickener, stabilizer, film former, emulsifier and binder. In addition to describing the new products, it also reports on established members of the Methocel family . . . MC, 65 HG, CAM, AS-2, AS-4, and AS-8. Copies are available immediately from Dow.

After 20 years . . .

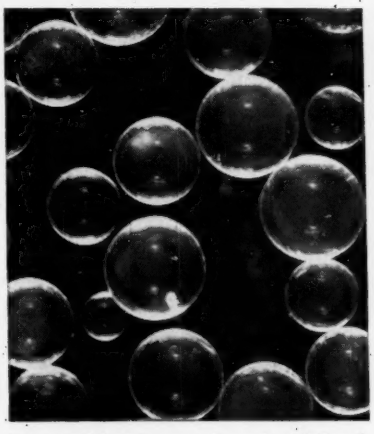
Ion exchange resins are being 'rediscovered'

In the 20 years or so since they were first discovered, ion exchange resins have softened oceans of water. These years of yeoman service have been worthwhile, but research chemists now probing the new uses for these resins find they've come across a basic, cost-saving industrial process with many really revolutionary uses.

"It's like discovering you've had an Einstein working as a file clerk," said one chemist. "We've found valuable new uses for ion exchange resins in concentration, conversion, fractionation, purification and catalysis."

Actually ion exchange might be considered the latest link in the chain of chemical processing evolution. Dow production and technical service personnel have geared themselves for the forthcoming expansion. Current users have found ion exchange practical and beneficial for such uses as uranium recovery, de-ionization of glycerine and sugar solutions, epoxidation catalysis, rare earth separations and recovery of metal finishing solutions such as chrome plating baths.

A big processing advantage in the ion exchange method, chemical processors are finding, is that ion exchange resins can be produced in an almost infinite variety to fit specific needs.



Increased bead strength and stability in new white cation resin, Dowex 50W.

These resins are manufactured by Dow under the trademark Dowex®. Dow technical service specialists are constantly helping chemical processors apply the principle of ion exchange to a multitude of manufacturing problems. Complete information on the various resins in the Dowex line and the countless specialized formulations possible is available from Dow.

This settles it:

Separan 2610 breaks flocculation bottlenecks

When it came to separating solids from liquids, a lot of chemical processors found that their biggest industrial waste was *time*. But that was before Separan® 2610.

A glimpse at the record of this high-speed flocculant shows why so many processors are impressed by its performance. A uranium ore processor reports: "With Separan 2610 we can make one thickener do the work of *five*." A copper processor says: "Increased settling rates with Separan 2610 increased our ore processing capability 1,600 tons a day, cut unit costs, and prevented bottlenecks."

The stop-watch of a West Virginia coal operator clocked Separan 2610 doing a two hour settling job in *seven minutes*. A paper mill superintendent explained that a small amount of Separan 2610 as a filler retention aid has decreased costs $10 per ton for 50 lb. offset bond while maintaining specifications.

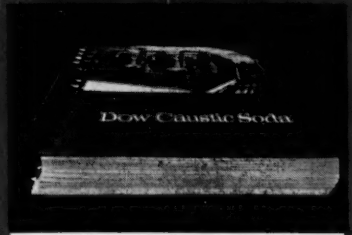
In an ever-widening variety of thickening, filtration and clarification applications, Separan 2610 is solving many problems, clarifying plant influents, providing cleaner recycle water, and increasing solids recovery. Results are continually startling new users.

As one processor put it, "We didn't even know we could improve the economics of our operation until we learned about Separan 2610. We're still amazed!"

* * *

If you aren't already profiting from these and other Dow chemicals, we suggest you write for complete information to THE DOW CHEMICAL COMPANY, Chemicals Sales Department 750B-2, Midland, Michigan.

POSSIBILITIES



ALKALI

Dow Caustic Soda Handbook—complete—authoritative. If you have not already ordered your copy of this new 86-page book, send for it today.

DOW CHEMICALS: Basic to the chemical processing industry

Alkylene Oxides, Glycols • Industrial Preservatives • Polyalkylene Glycols Glycol Ethers • Alkalies • Phenolic Compounds • Brominated and Chlorinated Aliphatic Compounds • Inorganic Acids • Halogens • Organic Acids and Esters Inorganic Chlorides, Bromides and Bromates • Nitrogen Compounds • Amino Acids • Glycerine • Salicylates • Phenyl Phosphates • Heat-Transfer Media Flotation and Flocculating Agents • Chelating Agents • Ion Exchange Resins Methylcellulose • Magnesium • Plastics • Aromatics

YOU CAN DEPEND ON DOW

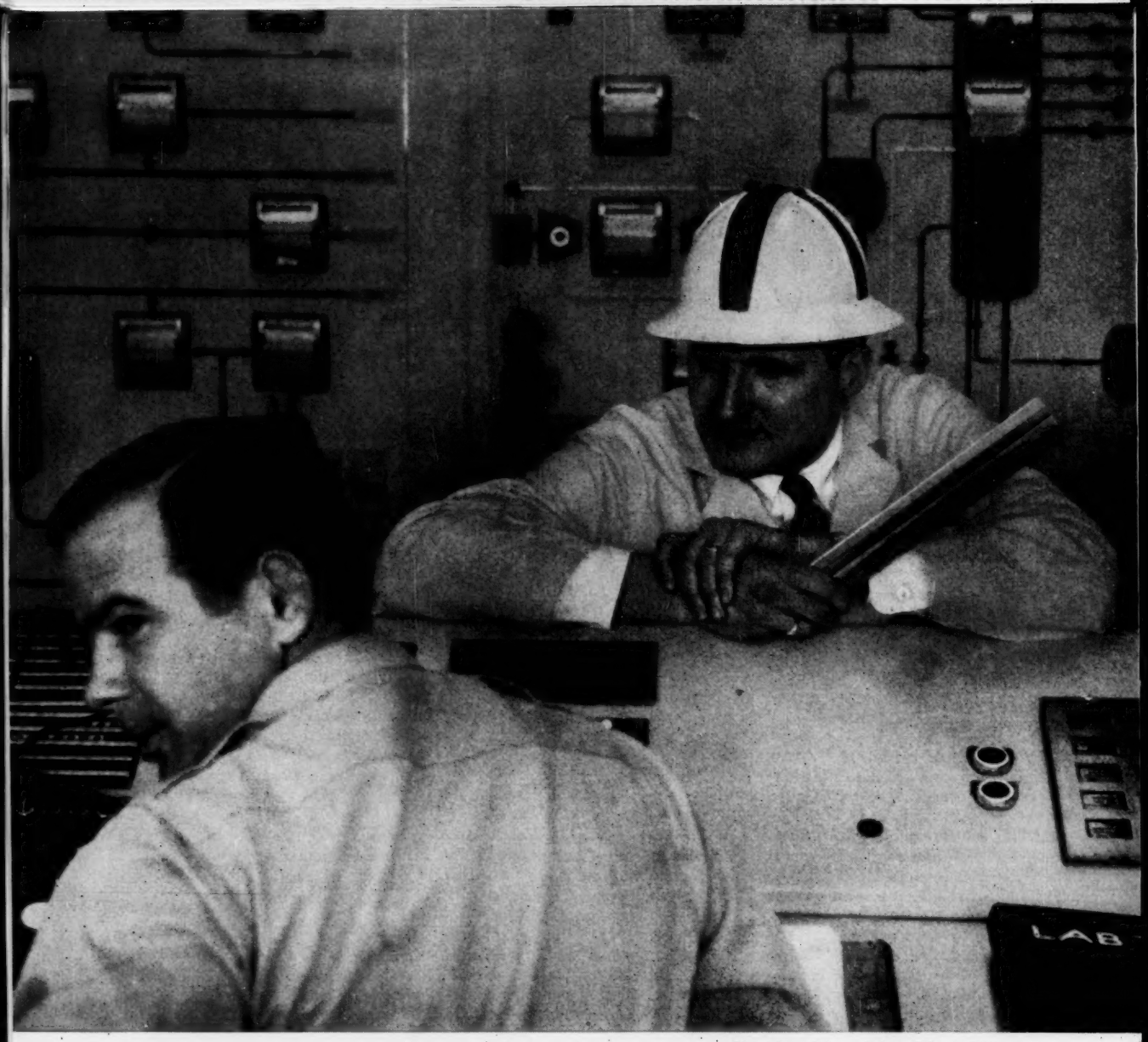


Photo taken at Delaware Refinery, Tidewater Oil Company

At the controls of refining progress

Refining progress and chemical technology go hand in hand. Working with refiners, Cyanamid chemists helped to pioneer the development of synthetic fluid cracking catalysts and the first fully regenerative platinum reforming catalyst. Behind Cyanamid's service as a major catalyst producer are its unlimited resources as a major chemical producer. To lend a hand in further progress, Cyanamid's man with the golden rule can place at your disposal vast chemical research and development facilities.

Basic in Catalyst Chemistry

CYANAMID

AMERICAN CYANAMID COMPANY • REFINERY CHEMICALS DEPARTMENT • 30 Rockefeller Plaza, New York 20, N. Y.

Originators of AEROCAT® Fluid Cracking Catalysts, AEROCAT TRIPLE A® High Alumina Catalysts, AEROFORM® Fluid Hydroforming and Platinum Reforming Catalysts, AERO® HDS Catalysts, AERO® Specialty Catalysts, CYPAN® Drilling Mud Conditioner, AEROLUBE® Lubricating Oil Additives, AERONOX® Antioxidants, AEROSOL® Surface Active Agents.

Industries' natural resources, contact with consumers, and growing chemical interests, appeared to neatly complement Mathieson's own spreading operations.*

The deal that merged Olin Industries and Mathieson Chemical into the fifth-largest chemical firm in the country in '54 was worked out largely by Nichols and Hanes, then financial vice-president of Olin. With Olin President John Olin, they made up the triumvirate which ran the new combine. Olin became chairman of the board; Nichols, president; and Hanes, chairman of the finance committee, of the newly formed Olin Mathieson Chemical Corp.

"We worked together as partners," recalls Nichols, "members of a group called the executive operating committee" (forerunner of the FOPC).

Oddly enough, both Olin Industries and Mathieson Chemical have histories dating back to 1892. The merger has been called a "natural"—what one needed the other had—to help achieve a mutual objective: greater stability of earning power.†

HODGEPODGE-SHY

It's a matter of record, however, that some investment houses haven't been too enthusiastic about recommending OM stock for inclusion in their clients' portfolios. Their explanation: the corporation's "hodgepodge" makeup. At least one such house recalls that a few years ago OM appeared to be in a bad way financially, and that it didn't seem possible that a company in so many different businesses would flourish.

Osborne, of course, is acutely aware of the Street's attitude. "I'm afraid," he ruefully admits, "that Wall Street still regards us as a very loose group of diverse companies and interests, too spread out to be well-managed. It should become obvious, however, that OM is well tied together despite diversification."

There are, perhaps, few OM people who have done as thorough a job of understanding the corporation and its complexities as quickly as has Osborne. For someone who had, prior to joining Mathieson Chemical in '50, "no conception of what the chemical industry was like," Osborne today has a fine grasp of every aspect of the business.

"If each of us," says a staff vice-president, "had to write an annual report, a market survey, or a standard procedure, Stan Osborne's undoubtedly would be the best of the lot."

Osborne keeps his finger on the pulse of corporate activity by frequent staff meetings (held in a small conference room adjoining his office), a two-way stream of memos to all division executives, and close attention to weekly and monthly corporation operating reports. The latter, neatly bound and kept handy in the bottom right-hand drawer of his desk, is, in his own words, "the bible."

Although most of Osborne's corporate contacts are with the top executives at OM's headquarters (460 Park Avenue, in New York), at least once a month—and usually more often—he has all his division managers in for a first-hand report. At these sessions, staff vice-presidents sit in, but chiefly as observers.

It's no hard rule, of course, but by now OM officials have come to regard a carefully prepared agenda as almost a requisite to a meeting with the president. "He's a bug on agendas," says one.

It's an indication, perhaps, of the man's concern for detail. But agendas don't substitute for action; quick decisions have come to be a recognizable Osborne trait.

At times, says one close to him, Stan is a "roughneck," not always the polished Harvard gentleman. "He'll shuck his coat, crack a joke, and hammer away at the idea at hand."

But, declares another OM executive, "he bends over backward to give every opportunity for one to present an opposing view." He is also known to dismiss objections with a favorite expression: "I couldn't care less."

ROAD TO EMINENCE

Osborne's earlier background gave little hint that he would one day head one of the largest chemical firms in the world.

He was born in 1905 in Costa Rica, eldest of three children of United Fruit Co. representative Edmund Osborne and Lilly de Jongh Osborne.*

Both grandfathers were in the diplomatic service—one in the Dutch, the other in the American. At the age of 12, and well-versed in languages (Osborne still speaks fluent Spanish, French, and German), young Stan was sent to Andover in the States, and later Harvard University. He graduated from Harvard in '26, took courses at Harvard Business School and, until '28, was a member of the History Department at Harvard College.

"Guess you can say I had my introduction to a business career," recalls Osborne, "when I left teaching at Harvard and joined Old Colony." Old Colony Corp., a Boston investment house, assigned the newcomer to look after its interests in Atlantic Coast Fisheries of Boston and New York. The latter, which had been losing money, recovered under Osborne's tenure as treasurer, secretary, and finally in '36, vice-president.

In '42, at the height of the U.S. scramble for new

* The '54 OM report shows a sales total of more than $503 million, a 157% increase over the combined sales of the two predecessor companies in '48. OM's consolidated '57 sales: close to $593 million.

† Shortly after the merger, OM acquired Hunter Engineering (for metals research), Blockson Chemical, The Brown Paper Mill Co. and four related converting companies, and a 25% interest in Marquardt Aircraft. In '56, the corporation disposed of its Lentheric Division and Bradley Container Corp.

* Who was to make a reputation as an author. Among her books: "Four Keys to Guatamala."

for durable, chemical-proof floors...

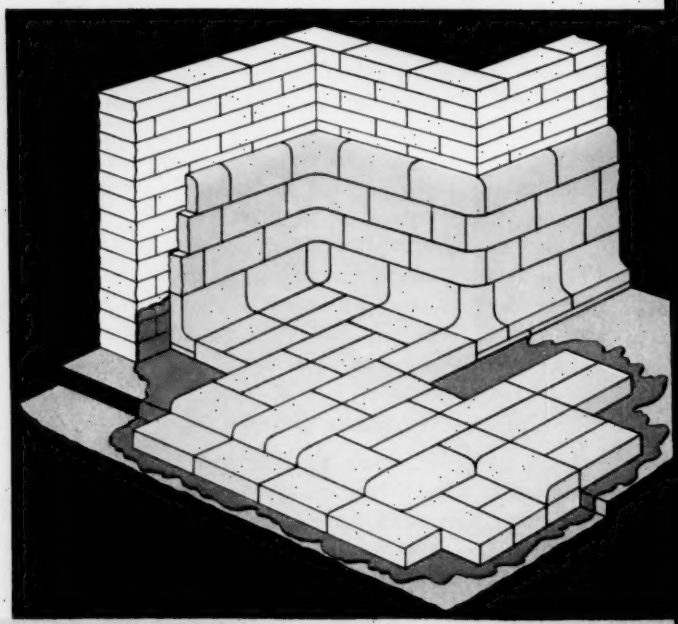
HARBISON-WALKER

DURO ACID-PROOF TILE

Duro tile are dense and non-absorbent throughout their entire thickness and are not dependent upon a skin glaze for resistance to penetration by corrosive liquids. The smooth, non-glassy surface of Duro is good for traction and the avoidance of slippage. Surfaces can be textured if desired.

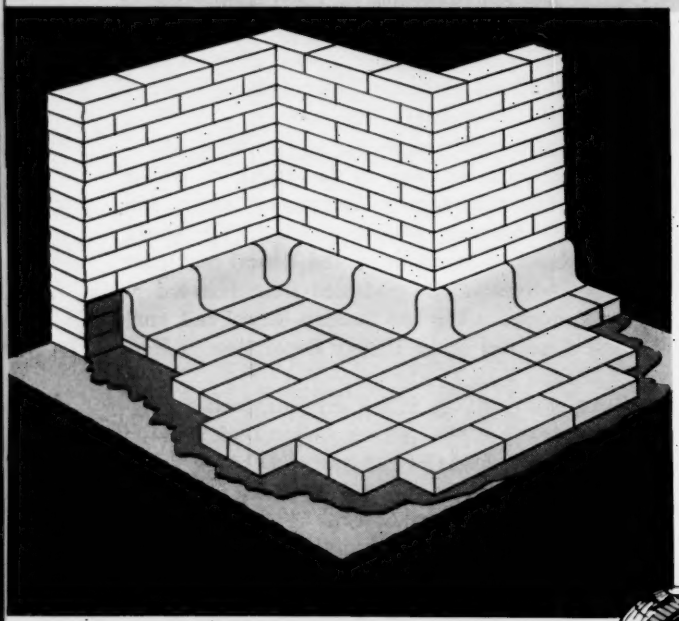
Duro is vitreous to the most desirable degree for high strength to withstand impact and abrasion and for maximum impermeability and resistance to chemical action. This combination of properties is attributable to its stabilized chemical composition of aluminum silicate which is exceedingly low in the more soluble basic fluxes, such as iron oxide and alkalies, the vacuum method of forming and the high temperature at which it is fired. Its mineral constituents are converted to the most stable forms of greatest insolubility in acids and various corrosive materials.

The light buff color of Duro, with freedom from the glare caused by glazed surfaces, contributes to the clean, sanitary appearance of the floors. The excellent workmanship of Duro tile and the variety of cove base shapes makes readily feasible a neat close fitting construction that is easy to keep clean.



SHAPES AND SIZES Depicted here are typical designs of DURO floor tile constructions using Harbison-Walker shapes and standard rectangular sizes as shown.

9" x 4½" x 1¼" ST	9" x 4½" x 2" ST	9" x 4½" x 3" ST
9" x 4½" x 1½" ST	9" x 4½" x 2½" ST	12" x 6" x 1½" ST



Typical applications for Duro floors

Acid Rooms	Food Processing Plants
Bakeries	Galvanizing Departments
Bottling Plants	Meat Packing Plants
Breweries	Metal Fabricating Plants
Chemical Plants	Paper Mills
Dairies	Photoengraving Plants
Die Works	Rayon Plants
Electroplating Plants	Steel Pickling Plants
Electrolytic Metal Refineries	Textile Mills

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sources of rubber to replace those cut off by the war, Osborne went to work for the Office of Rubber Director in Washington. His assignment took him to Haiti, to check on the possible use of the Cryptostegia vine as a source of natural rubber. Osborne's report was negative. On his return to Washington, he became one of several assistant deputies in ORD. In a few weeks, recalls Morehead Patterson—now board chairman of American Machine and Foundry, then another ORD deputy—Osborne "completely reorganized" a thoroughly disorganized operation.

Two years later, in '44, Osborne returned to industry via Eddie Rickenbacker's Eastern Airlines, where he rose to vice-president in charge of traffic. He left Eastern in '50, largely because the work, though exciting, was limiting in scope. It's no secret, moreover, that airline executives are not among American industry's best-paid management men. (As president and director of OM, Osborne's "aggregate remuneration" last year was slightly under $116,700.)

A luncheon meeting with Tom Nichols, arranged by friends, resulted in Osborne's introduction to the chemical industry. Says Nichols now: "For some time I had been looking for a man with a background of finance, and one whom I felt could grow with the developments I had in mind for Mathieson Chemical. I liked Stan Osborne as a person from the first, and his qualifications were excellent."

Osborne accepted Nichols' offer of the treasurer's job, soon became financial vice-president, and was to become Nichols' "good right arm" in effecting the Squibb ('52) and Olin ('54) mergers. After the latter, Osborne was named executive vice-president of the International Division (which he built up into an estimated $80-million/year business).

In May '57, the OM hierarchy underwent the reshuffling that ended with Osborne's election as president. Hanes, then 65, decided to partially retire. The finance committee, which he headed, became part of the combined FOPC with Olin as chairman. Olin's old job as board chairman went to Nichols.

There were others in the organization with presidential qualifications, says Nichols, but "Osborne seemed the best all-round choice." In the year just ended, the new president has apparently justified the selection.

WEEKEND WORKER

Osborne and his charming Vermonter wife (the former Elizabeth Ide, whom he married in '29) live in a small comfortably furnished New York apartment during the week, spend most weekends at their Essex, Conn., place—a two-story, pre-Revolution house on about eight acres of land. They've owned the place about three years, but Osborne still hasn't become involved in local affairs; he belongs to no country clubs, isn't one for informally entertaining neighbors.

Despite the kindly regard in which he is held by most who know him, Osborne paradoxically has few intimate friends, certainly no cronies in the sense of poker-playing pals.

"We lead a simple life," says Mrs. Osborne, "and when Stanley isn't immersed in a pile of work he brings home from the office, he enjoys puttering around the grounds." "But," she adds, "he likes to dress for dinner even if there are just the two of us."

Puttering means driving a power mower, tending the flowers surrounding the house, or working in a vegetable garden. His usual attire: sport shirt, well-worn khakis and sneakers.

Osborne, though trim, isn't one for strenuous athletic activities; he enjoys a game of croquet or chess or a dip with the children in the family swimming pool.

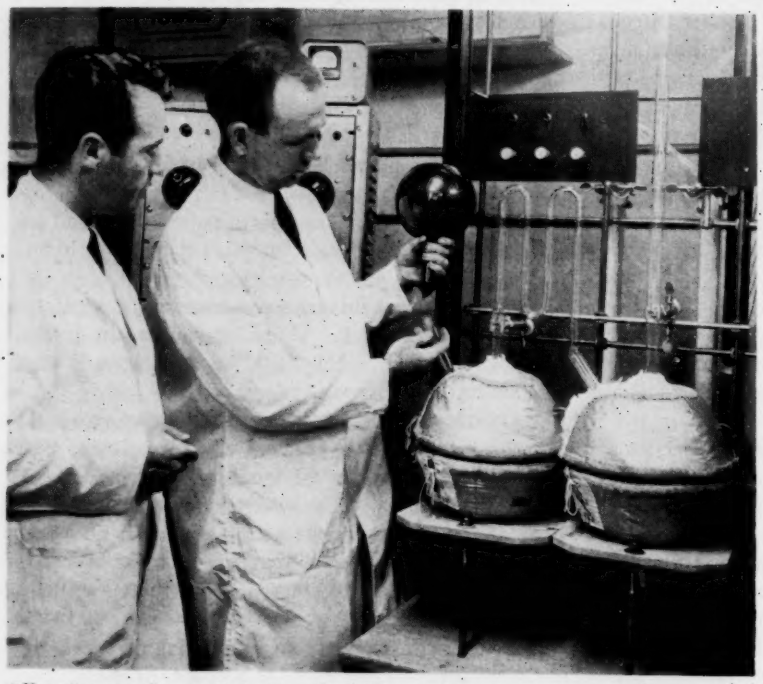
Most of his time, otherwise, is spent in reading, occasionally working on the history of Spain he's been writing for the past four years. "A satisfactory short English-language history of Spain needs to be written," he says, "and I enjoy working on it when I have the time." There are no plans for publishing the work, but Osborne is proud that he's had a couple of offers.

Highlight of any weekend is when the children and grandchildren come down for a visit. Osborne's eldest is daughter Mary (Mrs. James B. Downing, Jr.), mother of three. To grandchildren Jimmy, 4, Elizabeth ("Liza"), going on 3, and Johnny, soon to be 2, Osborne is "Gramps." His only son is recently married Princeton graduate Richard, and the youngest child is Cynthia (Penny), a sophomore at Sarah Lawrence College in Bronxville, N.Y.

"You can tell Mondays without looking at a calendar around here," says an associate. "That's when Stan comes in loaded for bear. He's had time over the weekend to read, think, come up with ideas—and starts right in putting them on the road."

"It's hectic working for Mr. Osborne," says effervescent Jeanne Freeman, his long-time secretary, "but I love it." Osborne arrives about 8 or 8:30 a.m., and invariably puts in 10 or 11 hours in the small, traditionally furnished (no modern pieces) office overlooking New York's Park Avenue on one side, 57th Street on the other. "And," his secretary adds, "there are no three-hour lunches, either."

Stan Osborne will decry the assertion that he wears a halo, but his brief tenure at OM has earned for him, among OM people, a deep respect and loyalty. His propensity for inspiring such devotion is one of his most obvious assets—and possibly invaluable for a man whose job it is to consolidate and streamline the organization chart of a company as big and many-faceted as Olin Mathieson.



Alloyd consultant H.S. Spacil adds moly reagent to plating setup.

Cooking Up a Moly Coat

This week, a much-researched method of plating out molybdenum is making its commercial debut at Alloyd Research Corp. (Watertown, Mass.). While Alloyd's entire initial output is for an undisclosed use by the government, the firm hopes the new cladding may eventually wrap its way around chemical process equipment, missiles and nuclear fuel elements.

If that happens, none will be happier than American Metal Climax Corp. (New York), whose compounds are used in the process. For some time, Climax has been casting about for new molybdenum chemical uses *(CW, April 23, '55, p. 44)*. In the past year, the firm has been exploring molybdenum deposition, reasoning that the metal's high resistance to corrosion, wear and heat should be welcome in cases where the use of solid molybdenum is uneconomical or impractical. Climax, consequently, has supplied raw materials and has been a clearing house for pertinent plating research information.

Control Problem: Alloyd is using hydrogen reduction of molybdenum pentachloride to yield molybdenum films — a technique that has been studied for years (generally under government sponsorship) at the metals processing laboratory of Massachusetts Institute of Technology, National Research Corp., Bell Laboratories and Battelle Memorial Institute.

In this procedure, an inert gas, such as helium or argon, is run into boiling metal chloride. It carries the metal vapor to a reactor, where the vapor is reduced with hydrogen, and will plate out on objects heated to 800-1100 C. This is called vapor-phase deposition. And it is applicable to metals, ceramics or graphite, says Alloyd consultant H. S. Spacil.

Process variables — reaction temperatures, total gas pressure, volumetric gas-flow rate, etc. — have needed study. Controlling them at optimum conditions is the key to success in commercializing the nonexclusive process.

Tungsten, too: Vapor-phase deposition can be used to plate out tungsten as well as molybdenum. Using molybdenum pentachloride, cost is about 53¢ to plate 1 sq. ft. of 1-mil-thick metal. For tungsten hexachloride, the cost is $1.99.

With either metal, it's possible to get continuous dense coatings. But flash coatings of cobalt or nickel may be necessary prior to molybdenum coating to prevent brittleness at the metal interfaces. Another difficulty: vapor-deposited molybdenum has poor lateral strength. Already, research has shown that heating and recrystallizing the plate will overcome this problem.

Gas Plating: Climax is interested in another novel technique called gas plating. It makes use of molybdenum and tungsten in the form of hexacarbonyls. Dayton's Commonwealth Engineering Co. of Ohio *(CW, June 19, '54, p. 74)* has done much of the research on this idea, which involves deposition of metallic coatings by vapor pyrolysis. Commercialization has been stymied by high materials costs and the toxicity of some carbonyls (e.g., nickel, cobalt and iron).

Climax points out that its carbonyls are expensive ($17 and $95/lb., respectively), but are likely to become cheaper as production costs come down. Currently, plating costs using the carbonyls are $2.55 and $18.05, respectively, per square foot of 1-mil-thick metal.

In general, vapor-phase deposition has one edge over gas plating with molybdenum: the carbon dioxide evolved in decomposition of the carbonyl (at 300-350 C) may cause formation of unwanted molybdenum carbide.

No Scramble: Although much of the vapor-phase deposition research has been government-sponsored* and is, therefore, largely in the public domain, metal companies aren't rushing to capitalize on it. Wah Chang Co. (New York), major tungsten supplier, says it has no interest in tungsten plating. Linde Air Products Co. (New York), division of Union Carbide, reports it has lost interest, as has Foote Mineral Co. (Philadelphia). But these attitudes could change if the new plating technique helps put the brakes on a sliding metals market.

*Much of MIT's work was sponsored by the Ordnance Corps' Springfield, Mass., arsenal.

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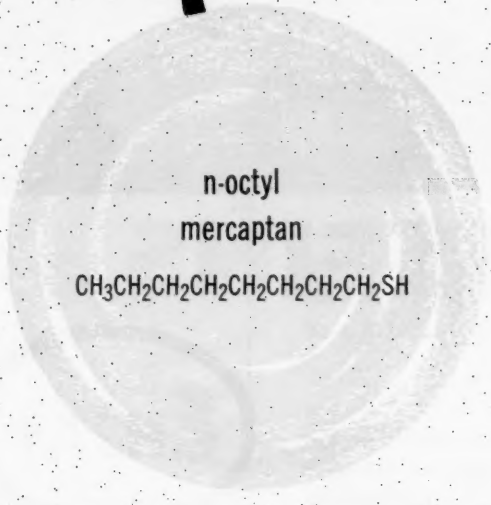

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Other members of Pennsalt's family of synthetic organosulfur "building blocks" include:

methyl mercaptan	ethylthioethanol
ethyl mercaptan	thiophene
t-dodecyl mercaptan	tetrahydrothiophene

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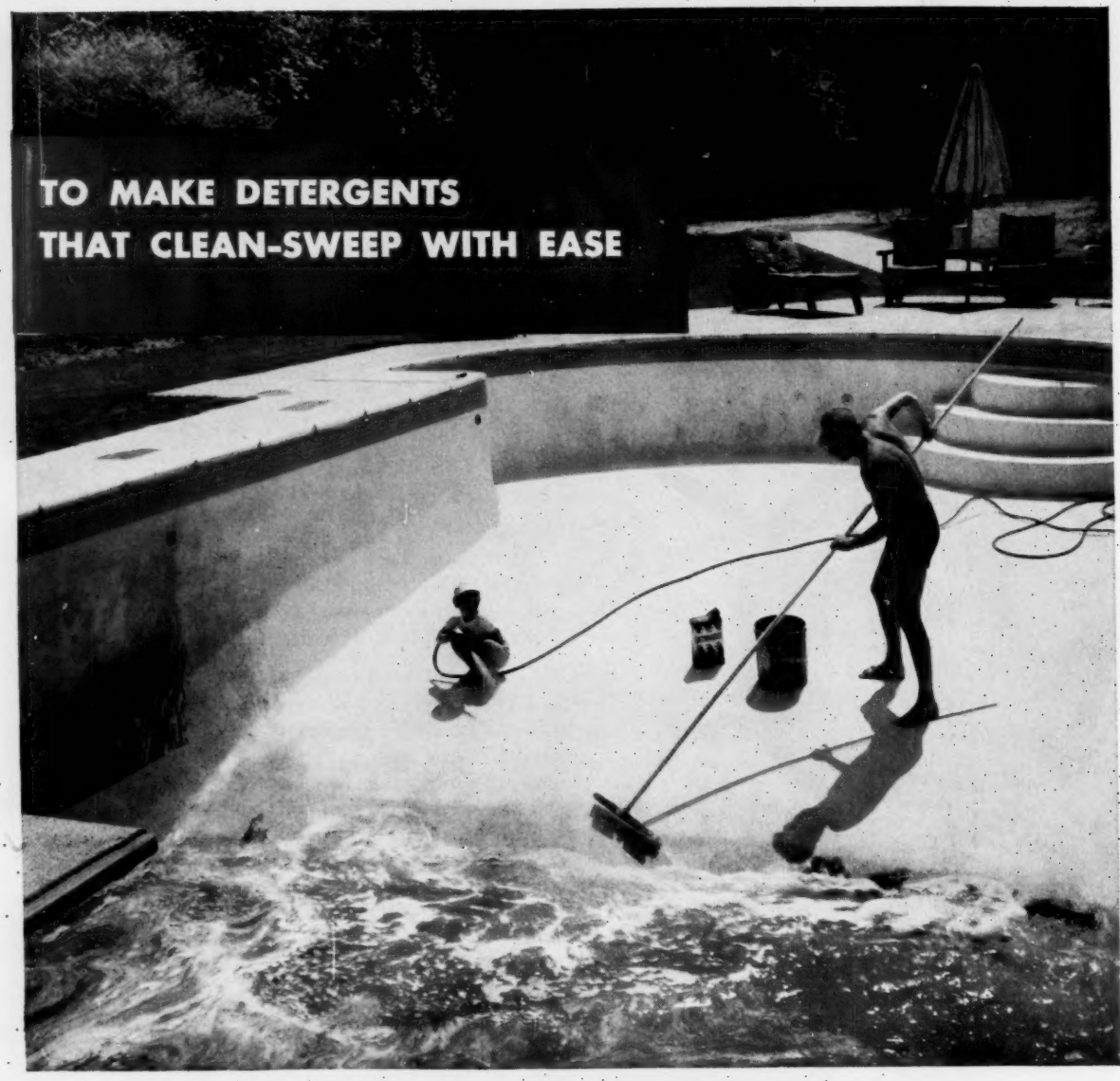

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Technology
Newsletter

CHEMICAL WEEK
July 26, 1958

Germany's Degussa is negotiating for uranium recovery processes worked out by Spain's Junta de Energia Nuclear. The processing shortcuts were turned up by Spanish scientists seeking low-cost routes to nuclear fuels. One is a direct fluorination technique that's said to eliminate three complicated processing steps; the other—reportedly the more important of the two—is a method of producing uranium oxide by an autoreduction process that doesn't require a supply of hydrogen. Aside from a brief reference to the use of ammonium bifluoride gas as a reagent in the autoreduction process, no further details of either shortcut have been revealed.

•

A new sewage treatment process—"atomized suspension"—will be tested for the recovery of chemicals from waste by Stolle Corp. (Sidney, O.). Developed at McGill University (Montreal, Que.) under the sponsorship of a group of Canadian pulp and paper companies, the method is based on steam evaporation of liquid wastes plus coincidental oxidation of organic wastes by the injection of air. Stolle Corp. got permission last week from the Ohio water pollution board to run tests, will eventually treat all of its industrial wastes by atomized suspension if results come up to expectations.

•

The British project for bacterial production of sulfur is coming up with encouraging results in the pilot plant (*CW Technology Newsletter, Feb. 9, '57*). The idea is to make hydrogen sulfide (for sulfur or sulfuric acid production) from a sulfate-enriched sewage; bacteria in the sludge would be the reducing agent. Latest word from the London County Council (which is doing the piloting at its Beckton works) confirms earlier lab findings that the process not only yields the sulfide easily but also reduces total amount of solids for disposal, because final sludge from the process dewaters more efficiently. This could be an important factor in the economics of the project.

•

Nonelectrolytic chlorine may be produced in Germany. According to *Chemische Industrie (June, '58, p. 309)*, chemists and engineers of the VEB Farbenfabrik Wolfen are working on such a process, hope to have it fully developed by the end of the year.

The Deacon process, of course, is the classical nonelectrolytic approach to chlorine manufacture. And a number of U.S. firms have developed variations on that *(CW, July 7, '57, p. 74)*. In this country, though, electricity is comparatively cheap and available. Deacon process and its variations have been considered largely as a means of side-stepping the concomitant production of caustic soda.

•

A new one-step de-sizing, scouring and bleaching process for cottons has been developed by Montecatini (Milan, Italy). The process

uses ozone instead of hydrogen peroxide—the favored U.S. bleaching agent. The firm says the process has been perfected and is ready for industrial use in preparing cotton fabrics for dyeing or printing. The treatment takes about 20 minutes and is carried out at what Montecatini calls "rather low" temperatures. It reportedly enhances the fabric's receptivity toward dyes to a greater degree than does hydrogen peroxide bleaching. But because small-size process equipment is used the amount of material that can be treated is comparatively limited.

•

Firestone is reporting a new synthetic rubber based on butadiene. Called Diene, its synthesis is catalyzed by lithium compounds, similar to those used in preparing Firestone's "synthetic natural" rubber, Coral.

The product, says Firestone, differs substantially in polymer structure from those made using Ziegler-type catalysts. But the company sees little difference in performance when blended with natural hevea rubber for tires or other products.

The firm regards Diene as a rubber extender. It feels that the product may eventually be used to replace a substantial portion of the natural rubber used in truck tires.

•

High-purity cerium is being made on a small scale by Bureau of Mines at its labs in Reno, Nev. Since researchers there look on the metal primarily as a "getter"—which can take up impurities from molten metals—they feel that production of high-purity cerium may provide an important means of making high-purity metals for new high-temperature alloys.

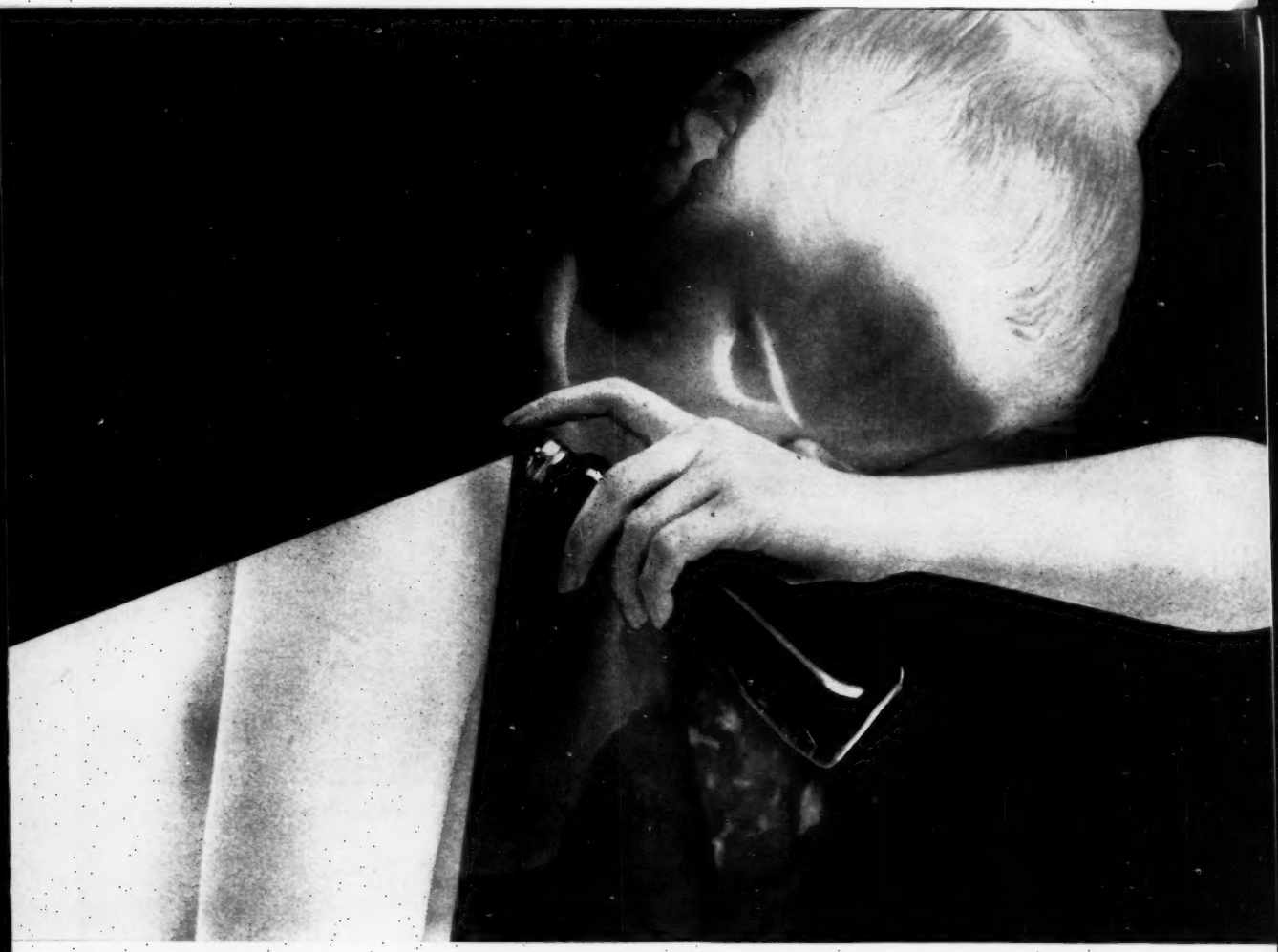
Cerium's affinity for taking up impurities, of course, poses some problems in producing it. The bureau is now employing an electrolytic process using air-tight apparatus and an inert blanket of a gas such as helium. But production is limited; it takes eight hours to make a pound of pure cerium.

•

Is Allied Chemical's research policy changing? This week it appointed Cortez Hackett, vice-president of Solvay Process Division, to be director of research and development for the corporation. It's a new post and the move may well signify a strengthening of Allied's central research operations, with less emphasis on divisional research.

•

Looking for a used analog computer? Mid-Century Instrumatic Corp. (New York) has instituted a novel trade-in marketing policy that will make reconditioned computers available at modest investment or low rental rates. Purpose of the plan: to make it easier for established computer users to update their facilities at a considerable saving; to accelerate the use of analogs among newer users.



This new packaging idea dominates a $70,000,000 market

Introduced just four years ago, aerosol-packaged colognes now account for more than half of total cologne sales. Aerosol packaging has taken command of this $70,000,000 market and has also revolutionized sales for hair fixatives, shave creams, insecticides and a host of other products.

Sales records and marketing data prove the appeal of aerosol packaging. In a recent market survey, housewives who tried aerosol cologne preferred it 6 to 1 over any other form. The reason: aerosol cologne is easier to use and apply, and there is no waste or evaporation.

If your product can be brushed, poured or sprayed, you stand a good chance to add new appeal—create a positive competitive advantage—if you packaged it in an aerosol.

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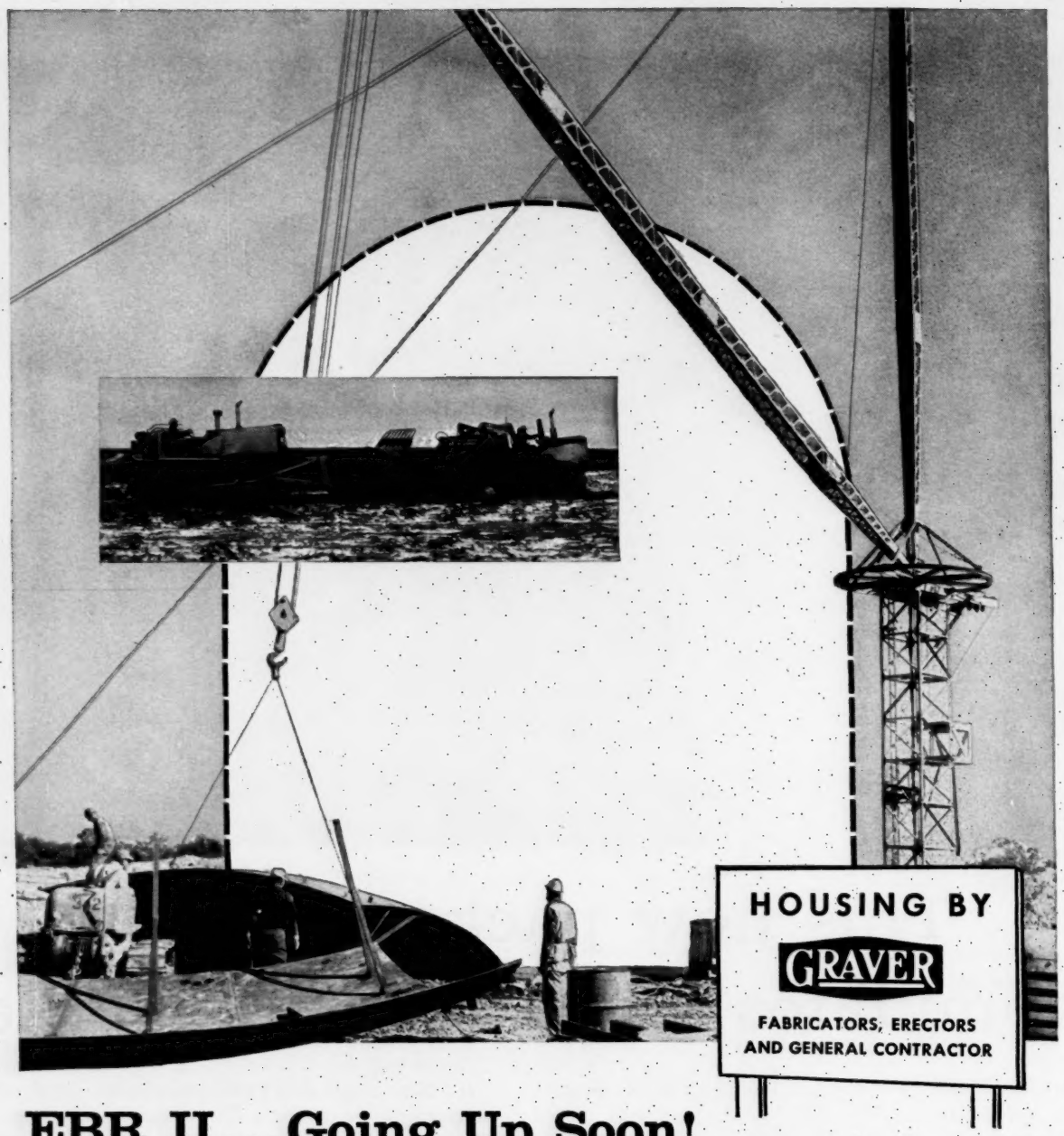

EBR II...Going Up Soon!

Ground breaking equipment is busily engaged in the construction of Argonne's new Experimental Breeder Reactor II near Idaho Falls, Idaho, with Graver as General Contractor. Scheduled for completion in 1958, EBR II will be housed in a giant pressure vessel 139′ high by 80′ wide fabricated by Graver from 1″ carbon steel. A 200,000 gallon water tank, also fabricated by Graver, is an integral part of the structure.

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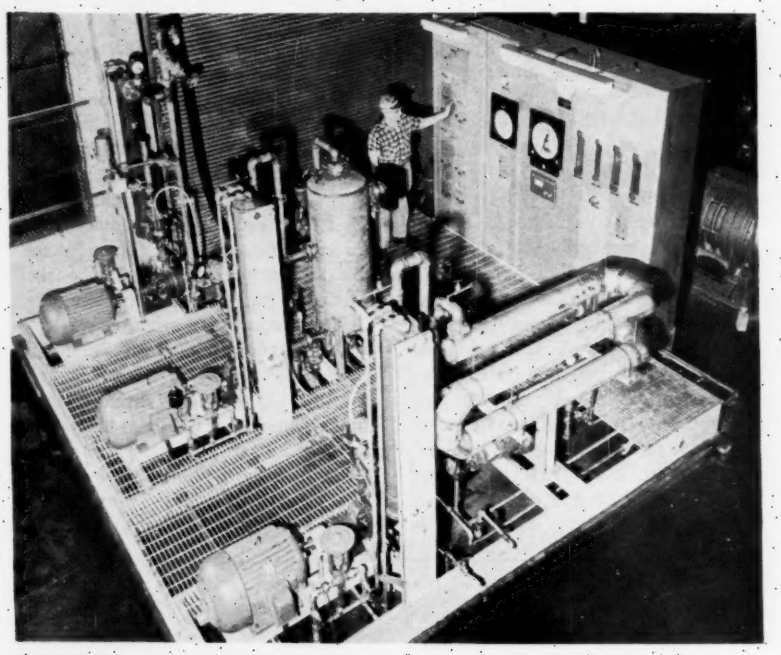

Chemithon packs a continuous-sulfonation process into . . .

Room-Size Sulfonation Unit

For greater simplicity and versatility in producing synthetic detergents, Chemithon Corp. (Seattle, Wash.) has now come up with two new engineering features that can be readily added to its compact continuous-processing units (CW, July 2, '55, p. 66).

One is a separation system that permits chlorosulfonic acid to be used for the continuous sulfation of products that must be relatively salt-free. The other is a tandem sulfonation-sulfation system—the first of which is now being readied for delivery to an unnamed overseas customer.

The modified systems retain the basic unit's chief advantage—high throughput capacity in a compact, low-cost plant. The units are much smaller than conventional batch-process plants. The standard 5-million-lbs./year plant (*above*) occupies a 15x15-ft. area; a 20-million-lbs./year unit would be a bit larger—20x20 ft.

Basically, continuous sulfonation of detergent alkylate (alkyl benzene) with oleum in a Chemithon plant involves three steps.

In the first, the alkylate and oleum are proportioned volumetrically into a sulfonator, where they are rapidly mixed. By recycling the mixture through a heat exchanger equipped with automatic temperature control, the system dissipates heat generated by the exothermic reaction, permits a relatively high temperature (about 125 F) to be used for sulfonation without color degradation. The reaction mixture overflows continuously from the sulfonator, passes into a reaction coil, where sulfonation goes to completion.

In the second step, product sulfonic acid is separated from excess sulfuric acid in a concentrator. Separation is made by diluting the mixture to form an unstable emulsion that readily splits into two phases. The separation rate is fast enough to prevent the formation of undesirable color bodies.

In the final step, the sulfonic acid is neutralized with caustic soda or other neutralizing agents, with sufficient mixing and cooling to prevent localized overheating.

Salt-Free Products: Though sulfonation with oleum is satisfactory for many synthetic detergents, it's not as suitable as chlorosulfonic acid for sulfation of highly active detergents—such as shampoos, cosmetics and liquid detergents—that must be relatively salt-free. In Chemithon plants, oleum is normally used for sulfation of fatty alcohols. But since the reaction is reversible, the excess can't be separated, as it can in the sulfonation process, winds up as salt in the neutralized product.

Chlorosulfonic acid, on the other hand, requires only a very slight excess over the stoichiometric requirement, produces a relatively salt-free product. The trick to adapting the Chemithon system to use chlorosulfonic acid was to provide for continuous removal of the hydrogen chloride gas generated by the reaction. This the company did by designing a relatively simple separation tank that could be added to a conventional unit with only slight modification. Details of the new separator are not yet available because of patent considerations.

Continuous sulfation of fatty alcohols (e.g., lauryl alcohol, tallow alcohols) with either oleum or chlorosulfonic acid produces sulfates with good color quality at yields of better than 96%. And as in the continuous sulfonation process, sulfation takes place in minutes instead of the several hours required for conventional batch-processing.

Mixed Products: The tandem-processing arrangement developed by Chemithon is aimed at simplifying and improving production of mixed detergents. Conventionally, these materials are made by sulfonating the detergent alkylate and sulfating fatty alcohol separately, later blending the products (either before or after neutralization) in the desired ratio. The tandem method achieves the same result by passing the unneutralized product from the sulfonation stage directly to the sulfation unit, where the fatty alcohol and more oleum are added.

Excess sulfuric acid carried over from the first stage reduces the oleum required for sulfation and, because it does not have to be neutralized separately, reduces the amount of neutralizing agent used. In addition, says Chemithon, the tandem system provides better conversion in the second stage, improves the homogeneity of the mixed product.

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- *Manufacture of smokeless powder*

Solvent recovery is the efficient, economical way to recover solvents vaporized in manufacturing processes. What solvents can be recovered? Well, alcohols, esters, ethers, ketones, hydrocarbons, chlorinated compounds, and practically all mixtures of these solvents can be recovered and reused. And look at these facts . . . *recovery plant efficiency—more than 99%: cost of recovery—1 to 2¢ per pound.*

This means that the initial cost of solvents becomes a secondary consideration because they can be used over and over again. Fire and health hazards are reduced, too!

CARBIDE can tell you how a solvent recovery plant can efficiently and economically recover your process solvents. Write now for the booklet, "Solvent Recovery by the COLUMBIA Activated Carbon System." Address Department B, Union Carbide Olefins Company, 30 East 42nd Street, New York 17, New York.

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Division of Union Carbide Corporation

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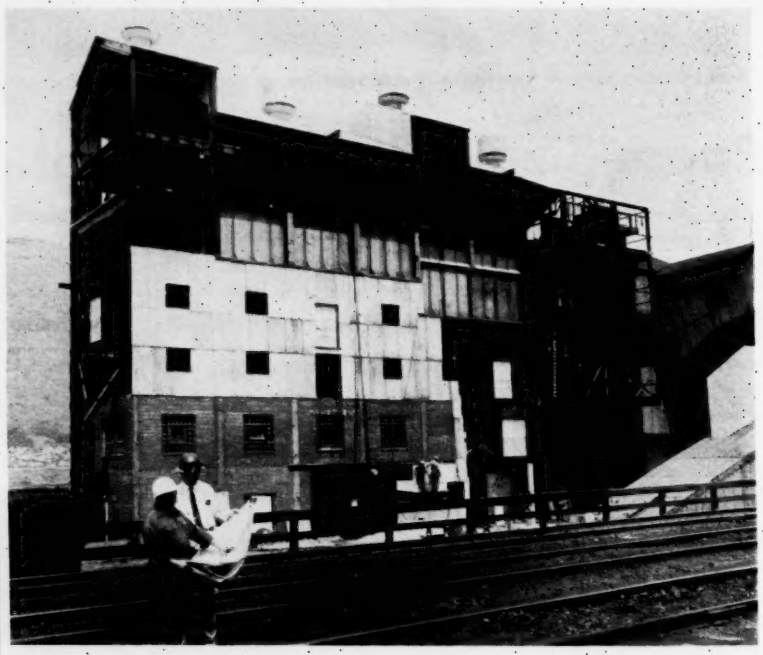
Add Degussa Cyanide

Here are more details on the German process for making hydrogen cyanide from methane and ammonia without the use of oxygen *(CW Technology Newsletter, March 29)*. Developed by Deutsche Gold und Silber Scheideanstalt (Degussa), the process has been piloted in a 100-tons/month plant since last fall. Yields have been 91% (based on methane) and 83% (based on ammonia), compared with 70% and 60% yields, respectively, from the conventional, oxygen-using Andrussow process units. In addition, about 10% of the ammonia is recovered as ammonium sulfate.

Product gas of the Degussa process contains more than 20% hydrogen cyanide and over 70% hydrogen (88,000 cu. ft. of hydrogen per ton of hydrogen cyanide). The Andrussow process, on the other hand, produces a gas that is typically 6-7% hydrogen cyanide, nearly 25% water vapor and over 50% nitrogen.

The reaction is carried out at 1200-1300 C in gas-heated ceramic tubes lined with a catalyst containing 70% platinum. The Degussa plant consists of two 50-tons/month furnaces, each containing eight vertical chambers, each with 13 tubes of sintered aluminum oxide. The raw materials (including carefully washed methane) pass into the tubes, emerge as the product gas mixture, which is cooled and washed with acid. The hydrogen cyanide is absorbed in a solution of sodium hydroxide. Since the volume of gas required to produce a ton of hydrogen cyanide is about one-third the volume needed in the Andrussow process, substantial savings in equipment size are possible.



Seeking Routes to Coal Chemicals

This nearly completed pilot plant at U.S. Steel's Clairton Works (Clairton, Pa.) is the first in this country, says USS, that permits large-scale studies of coal preparation, coke and coal production. Equipped to handle up to 50 tons/hour of coal, the unit provides any combination of operations such as crushing, pulverizing, drying, bulk-density control, mixing and blending. Effects of different preparation methods on the coking operation and on the yield of coal chemicals will be studied in five commercial-size coke ovens that can be tied into the Clairton Works' regular production units when they're not needed for tests.

WHAT'S YOUR PROBLEM AND HOW CAN CO_2 HELP YOU?

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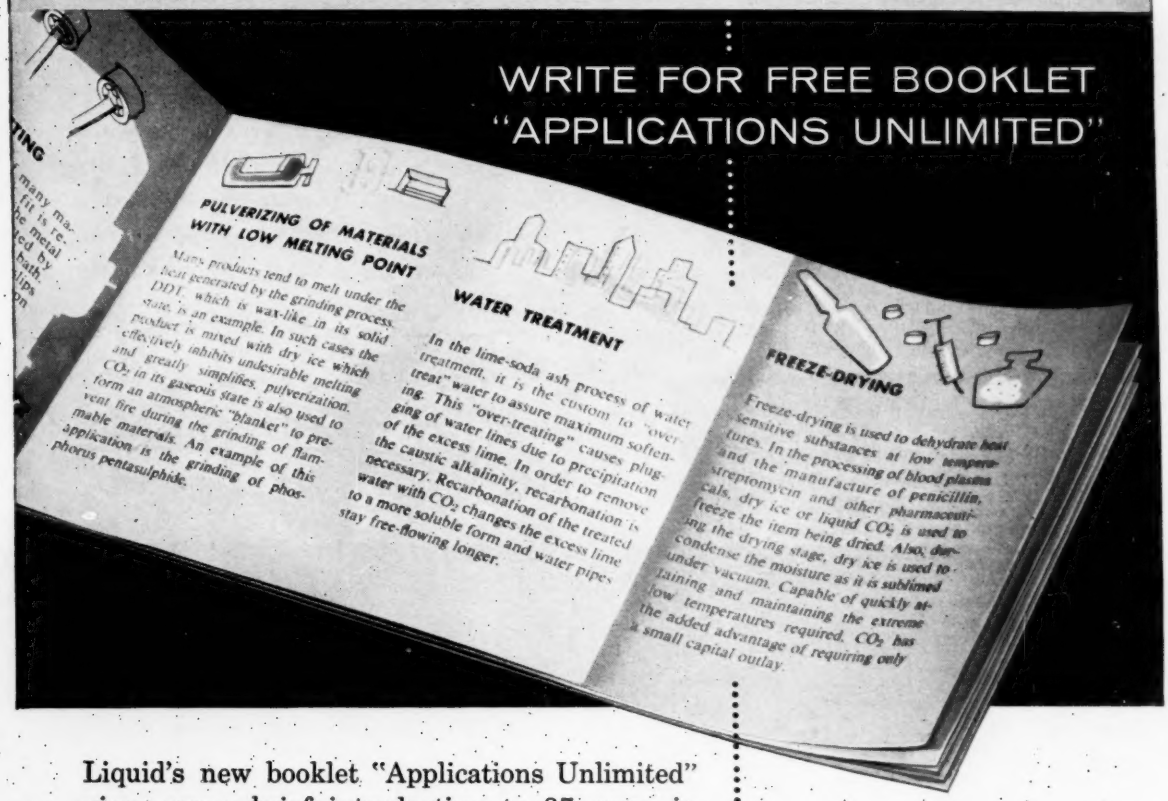
"APPLICATIONS UNLIMITED"


PULVERIZING OF MATERIALS WITH LOW MELTING POINT
Many products tend to melt under the heat generated by the grinding process. DDT, which is wax-like in its solid state, is an example. In such cases the product is mixed with dry ice which effectively inhibits undesirable melting and greatly simplifies pulverization. CO_2 in its gaseous state is also used to form an atmospheric "blanket" to prevent fire during the grinding of flammable materials. An example of this application is the grinding of phosphorus pentasulphide.
WATER TREATMENT
In the lime-soda ash process of water treatment, it is the custom to "over-treat" water to assure maximum softening. This "over-treating" causes plugging of water lines due to precipitation of the excess lime. In order to remove the caustic alkalinity, recarbonation is necessary. Recarbonation of the treated water with CO_2 changes the excess lime to a more soluble form and water pipes stay free-flowing longer.
FREEZE-DRYING
Freeze-drying is used to dehydrate heat sensitive substances at low temperatures. In the processing of blood plasma and the manufacture of penicillin, streptomycin and other pharmaceuticals, dry ice or liquid CO_2 is used to freeze the item being dried. Also, during the drying stage, dry ice is used to condense the moisture as it is sublimed under vacuum. Capable of quickly attaining and maintaining the extreme low temperatures required, CO_2 has the added advantage of requiring only a small capital outlay.

Liquid's new booklet "Applications Unlimited" gives you a brief introduction to 37 ways in which CO_2 is being used in modern industry. To find out how CO_2 can help your business, write for further information. Our technical staff is always ready to work with you. *Write today!*

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Aspirin	Generator Purging	Polyester Fibers
Beverages	Grinding Coolant	Pulverization
Carbonates	Hog Slaughtering	Rubber Tumbling
Cooling of Reaction Kettles	T.I.G. Welding	Frozen Foods
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Other types of profitable "soluble" oils stemming from CARBIDE's ethanolamines, isopropanolamine, or morpholine have special properties that make them particularly useful for lubricating textile machinery and for conditioning rayon fibers before spinning or knitting. You can obtain technical data and starting formulations on "soluble" oils—and oil and solvent emulsions, wax emulsions, oil and wax polishes, cosmetics, and detergents from your CARBIDE Technical Representative. Or, write Department H, Union Carbide Chemicals Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York. In Canada: Carbide Chemicals Company, Division of Union Carbide Canada Limited, Montreal.

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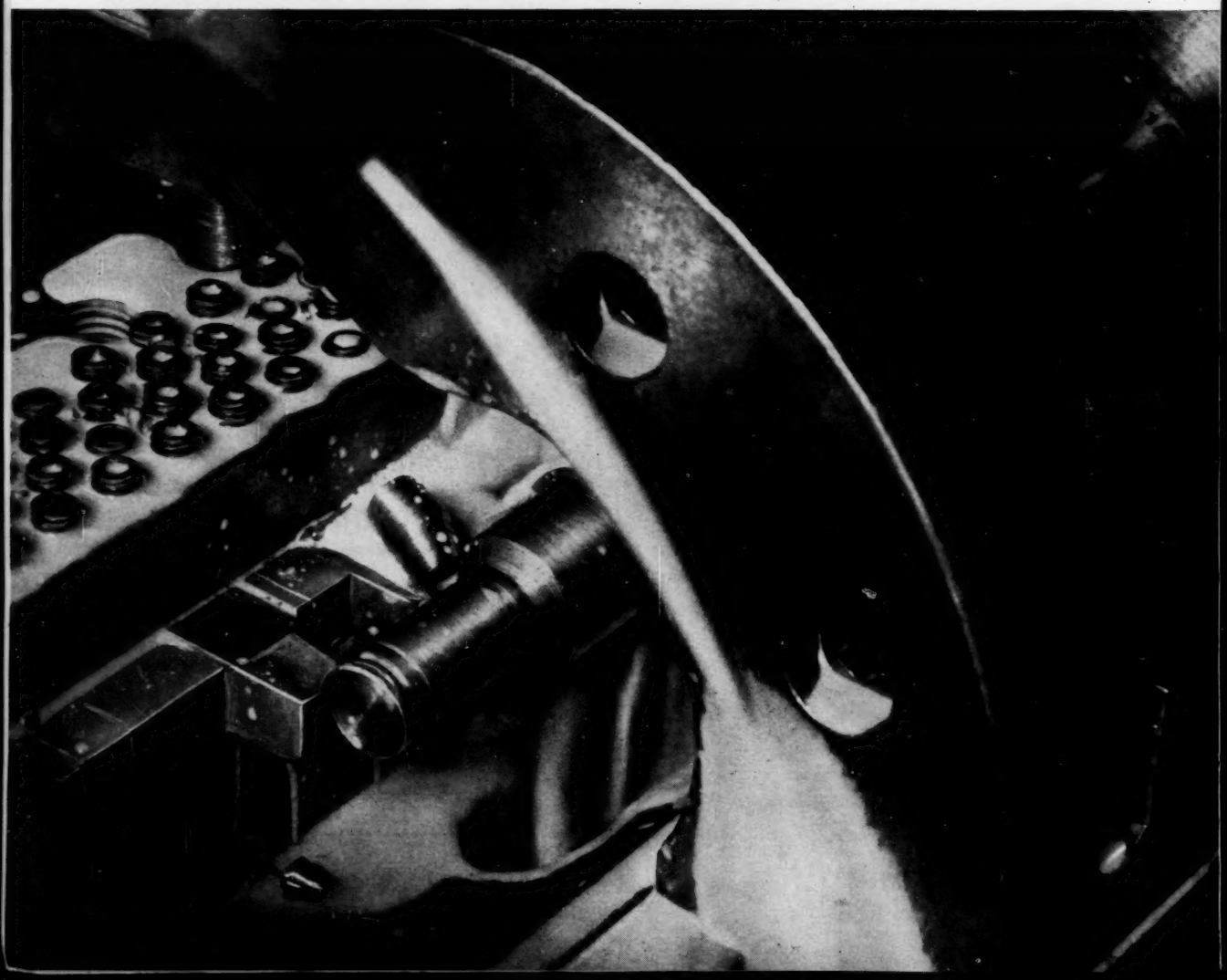

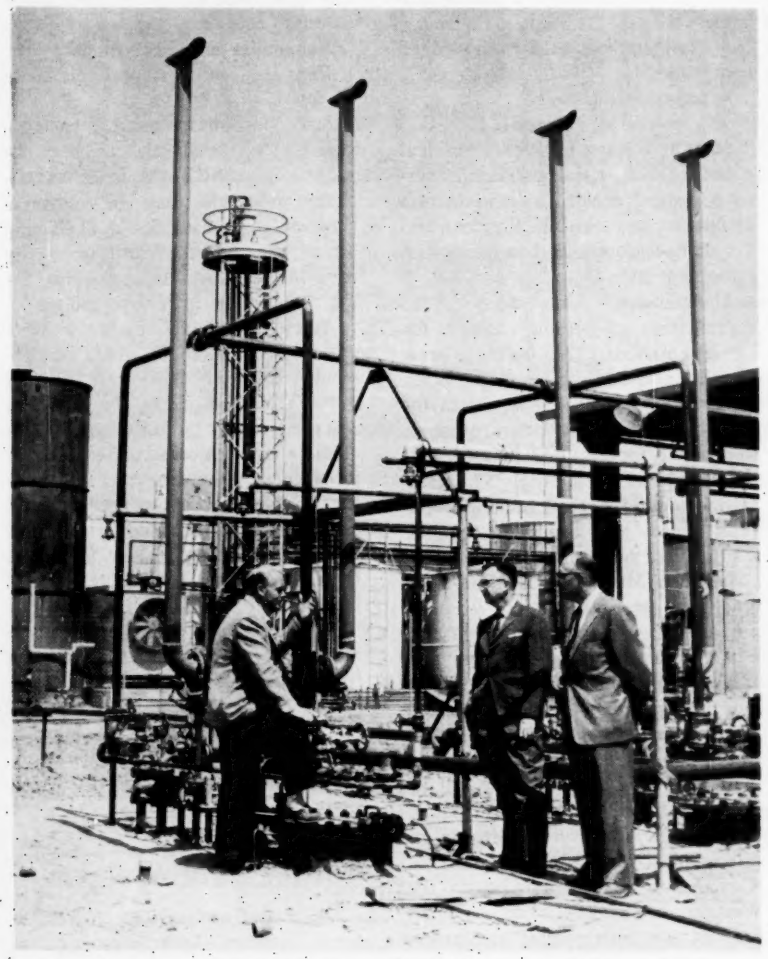

PC's Pederson, Gaiser and Sherr: They've succeeded by being . . .

Onstream for the West

Just onstream with its new, 4.5-million-lbs./year ethylene oxide reaction unit, Process Chemical Co. (Los Nietos, Calif.), specialties raw material maker, is living up to its motto, "growing with the West and building for the future." Secret of its growth: it offers a lot of help to customers, is an on-the-spot supplier to Pacific Coast specialties formulators.

But PC doesn't intend to limit itself to supplying only the coast companies. Its new plant puts it in a good position to furnish ethoxylated compounds to formulators throughout the West. And if its new-product development group comes up with an item that will click nationally, the company won't hesitate to spread distribution castward.

Reasons for Optimism: PC is currently prospering in selling to specialties makers. In the last three years, it has grown at a 20%/year rate. Says president Benn Russell, "I think we're just beginning real growth."

Basis for his optimism: PC's products are linked directly to items used in increasing amounts by the West Coast's growing population. This has created volume markets and a variety of outlets. Some of its chemical products end up in items such as food and cosmetics. Others are used in cutting oils, which are finding big demand in California's giant aircraft industry. Asphalt additives are also becoming a big business for PC—everytime a new housing development is constructed in California, new roads are built and asphalt demand is boosted.

In each case, much of PC's success with makers of the individual specialties harks to its willingness to help the customer on a "custom" basis. In fact, the company's forte lies in furnishing special compounds that give a customer the unusual or unique product it seeks. Says Conrad Gaiser, technical sales director, "We do things on a specialized basis that larger companies can't or won't do." In fact, he says, PC will aid its customers in solving either lab or production problems.

The firm's strength in technical manpower is credited for its ability to extend this help. Russell is a chemical engineer, formerly worked for Hooker Chemical as a technical representative, now concentrates on the administration and financial end of PC's affairs. Sales Director Gaiser has spent more than 25 years in the West Coast chemical business. Research Director Oscar Scherr, former head of research at Ninol Laboratories in Chicago, has had some 20 years' experience with surfactants, has been with PC seven years. Three men work with Scherr on full-time research; two others split their time between research and quality control.

Mixed Blessing: But it's this willingness to make specialty items that is causing troubles for PC. "Justifying the specialized service is becoming more and more of a problem," states Gaiser. The standard product line suffers. While it's surprisingly easy to sell costly formulation research, Gaiser says, it's often harder to sell a customer a product from the general product line—even when that product would work as well as one that's especially developed.

Customers, he adds, seem to be fascinated by the thought of getting a brand-new product for their very own use, are often willing to pay the extra costs. Gaiser says that Process Chemicals now looks ahead before it develops a specialty product, to make sure it's not a product of limited value: "We must control our enthusiasm for 'odd-ball' items."

And definitely not "odd ball" are

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6234

PC's newest projects. Among the laboratory investigations that look worthwhile:

- New application for ethoxylated compounds.
- Substituted cresols.
- Urethane prepolymers.

How It Began: In 1948, President Russell and PC's first president, Morris Katzman, decided to manufacture surface-active chemicals. Katzman had a wide background in detergents, with some 100 patents to his credit.

The company's first venture was the manufacture of sodium sulfide for foreign markets. The business grew steadily, and PC expanded into other lines, including emulsifiers, esters for the cosmetics trade. Later, products were made for the food industry and other industries. In Aug. '57, Katzman died and Russell became president. Since the beginning of '58, management has consisted of Russell, Gaiser and Mrs. Katzman. She is an officer of the corporation, controls purchasing and handles sales and promotion problems.

Not Rooted to the West: Russell says the company will continue to concentrate its sales efforts on the West Coast, handling a few special sales in the East. Chemical brokers sell its products throughout the West, and it does a little advertising, mostly in local chemical society publications. But Russell says PC is not tied to the West Coast: "If and when we hit a product that finds general acceptance, we'll move into as many areas as possible. Right now, though, it looks as if we're at least three years away from making any definite moves to the East."

USDA's New Glossary

What's the difference between an antiseptic and a disinfectant? What is a bacteriostat? What does "sanitize" mean? The average consumer (and some specialties makers) might have some difficulty answering these questions precisely. So, Dept. of Agriculture has issued a bulletin (1845-58), prepared by its bacteriologists, that is designed to provide the answers.

Glossary: Here's how USDA defines these terms:

A sterilizer must kill all bacteria when used as directed.

Bacteriostats must prevent the growth of bacteria.

Germicides and disinfectants must kill all bacteria except resistant spore-forming species.

Fungicides must kill fungi.

Fungistats must stop development of fungi.

Sanitizers must reduce bacterial counts to safe levels, as may be judged by public health requirements.

An antiseptic may be either a germicide or a bacteriostat, depending on its use, but the word is usually used for preparations applied to living rather than inanimate things.

Among specialties makers there's some confusion about which government department checks on labeling, but the bulletin clears this up, too. All germicidal chemicals used on inanimate surfaces come under USDA's jurisdiction if they are offered for interstate sale. Antiseptics used on man or animals are regulated by Food & Drug Administration of the U.S. Dept. of Health, Education & Welfare.

It's the job of Federal Trade Commission to prevent exaggerated claims from appearing in advertising of registered chemicals. But USDA checks for accuracy all collateral labeling (publicity that accompanies the product—e.g., display cards for retail stores and leaflets that go with the package).

Rattler Battler

Stray rattlesnakes with a yen to share quarters with camper-outers can reportedly be dissuaded by a newly developed rattler repellent. The trick is to scatter bits of mercaptan-soaked charcoal lumps around a campsite or dwelling in snake-infested areas.

The repellent was developed at University of California (Los Angeles) through research supported by Richfield Oil Co. The studies suggest that the close resemblance of the mercaptan's odor to that of skunk odor repells the rattler. Although the odor is enough to keep the snakes away it isn't strong enough to be unpleasant to humans.

Along with synthetic "skunk juice" there's another good way of keeping off the rattlers: through use of king snake odor, obtained from scales from that reptile's back. While a better repellent than the synthetic material, it's much less practical to use.

YESSIR—ALL THESE FINE BRANDS ARE NOW SOLD IN **ACCU-POR** CANS!

And no wonder! Canco's Accu-Por can pours freely, yet won't drip a drop when righted. Handy, light, unbreakable, these containers are available in pint, quart and half-pint sizes—and priced as much as 25% below similar cans. Perfect for almost any liquid product—household specialties, automotive, marine. It is the ideal package for liquids—well suited to many dry products.

Maybe Accu-Por cans will help sell your brand! Talk to your Canco representative today.

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Owens-Illinois Assures You A Complete Packaging Approach

Co-ordinated Research

Pure research into fabrication of glass, *packaging research* into processing and handling methods in customer plants, *market research* into consumer attitudes. All add up to greater packaging value.

Engineered Design

At Owens-Illinois, your package's *three* needs are taken into account: 1) Considerations of its function in the retail store, 2) its operating efficiency, and 3) its consumer utility.

The Right Container

Versatility of facilities and talents make O-I your best source of supply. In container development—beauty, utility, tradition are blended in the right proportions for your product's needs.

The Right Closure

Through long and continuing research O-I has developed the most advanced metal and plastic closures. Helping you choose the right closure is another function of O-I's packaging service.

Needed Fitments

O-I specialists are keenly aware of sales benefits derived from plastic shaker and pour-out fitments which are not "gadgets" but which increase consumer satisfaction with your product.

Merchandising Cartons

Modern cartons are developed only through systematic consideration of their opportunity to serve you in the retail store and warehouse . . . as well as on your own filling line and in transit.

New convenience for liquid products! New *two-finger* handle by O-I . . . makes large-size containers so much easier for the housewife to use.

Laundry products in glass are easy to hold, easy to use... and a glance shows how much is left.

Look at all the freedom glass brings to washday packaging!

In today's market, your laundry product needs every packaging advantage: a new user convenience—an edge in eye appeal—or even the smallest reduction in volume-cost.

That's the beauty of glass packaging—*packaging freedom!* There are endless ways to improve your salespackage to make it work harder. Take, for example, these up-to-the-minute packaging ideas from Owens-Illinois.

The full-gallon jug. Ideal for volume items like liquid starch, where users are accustomed to buying for economy in big ½-gallon sizes. Users will appreciate the extra savings they get in the full-gallon jug. And it means the advantage of more economy to you, too!

New two-finger handle. Gripped with two fingers, instead of one, economy sizes of liquid washday products seem so much lighter, far more convenient to use.

Bright, attractive ACL labels. Natural for premium-priced *washday* products like special cold-water compounds for woolens. Glass labeled with bright, colorful ACL label makes an eyecatching salespackage.

So for washday packaging—make it glass! Remember Owens-Illinois is the marketing-minded supplier of the *complete* salespackage—from over-all design to selection of the right container, closure and fitment.

DURAGLAS CONTAINERS
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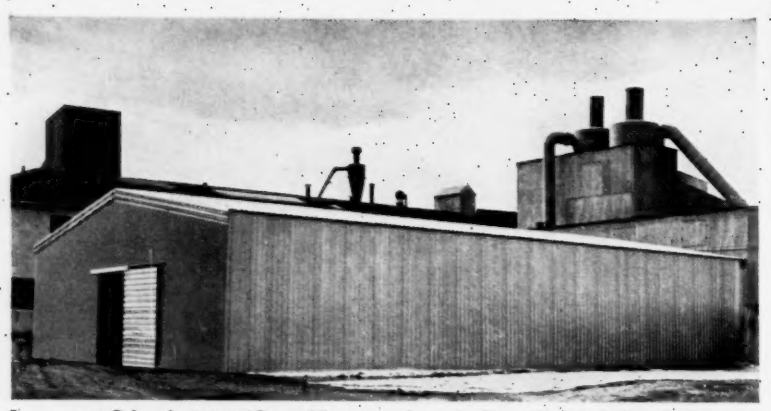

Longmount, Colorado: 48'x64' Stran-Master warehouse for Farm Chemicals Supply Company

Keep chemical plant and storage costs down with **Stran-Master,** lowest cost all-steel building

For the lowest cost per square foot—30% to 50% less than other steel buildings—the Stran-Master gives you an efficient processing plant, warehouse or utility building. And its all-steel construction gives chemical producers permanent protection, low insurance rates, fire safety. The Stran-Master is a quality-engineered, volume-produced building that goes up in days in the size you specify and can be readily expanded later. It's handsome, easily insulated and needs little maintenance.

You can finance a Stran-Master directly through your Stran-Steel dealer without affecting regular credit lines. Pay only one-fourth down, balance over a 5-year period. For the complete story, mail the coupon now or contact your nearest Stran-Steel dealer. He's listed in the Yellow Pages under *Steel Buildings* or *Buildings—Steel.*

Fork trucks manipulate pallets easily in roomy Stran-Master. Manager George Fleming says, "The building is really doing the job we bought it for. We feel it was an excellent buy."

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SPECIALTIES

PRODUCTS

Rust Preventive: Lehigh Chemical Co. (Chestertown, Md.) is now offering a nonflammable, nontoxic rust preventive in a 16-oz. aerosol container. It's tradenamed L-536, sells for $2.

•

Sulfamic Acid Inhibitor: Amchem Products, Inc. (Ambler, Pa.), has introduced a new inhibitor, Rodine No. 140, designed for use with sulfamic acid. The product was specifically designed to protect galvanized steel. Mixtures of the inhibitor and sulfamic acid are said to be stable and odor free.

•

Plane Facts: Transland Aircraft (Torrance, Calif.) has just issued an 8-page brochure describing an improved dispensing unit for aerial application of dusts or liquids.

•

Colored Starch: A. E. Staley Manufacturing Co. (Decatur, Ill.) is offering food-grade starch, pretinted in a wide range of colors. The line of starch is called COLORx.

•

Aerosol Debut: Abbott Laboratories (North Chicago, Ill.) has turned to aerosol packaging for the first time. The company is now offering Tronothane Hydrochloride, an aqueous form of a topical anesthetic for relief of surface pain, flash burns, sunburn, abrasion, itching. It's marketed in 120-cc., plastic-coated, push-button containers.

•

Mothproofer: Hart Products Corp. (New York) is now offering Larvatex, an emulsified concentrate of dieldrin, for permanent mothproofing of wool. It's available in commercial quantities and is said to give mothproofing resistant to repeated laundering and dry cleaning.

•

Aerosol Shellac: Bulls Eye Spray Shellac is William Zinsser and Co.'s (New York) latest product. The clear shellac, packaged in a 16-oz. aerosol container, dries in three hours.

•

Wax Hardener: Shanco Plastics and Chemicals, Inc. (Tonawanda, N.Y.), is offering a new hardener for acrylic floor waxes. Called Shanco L1135, the new hardener is claimed to overcome softness, tackiness, dirt pickup.

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Can Wyandotte technical service create a new product for you?

The answer to this question is "NO."

The reason is obvious.

The primary purpose of Wyandotte technical service is to make specific recommendations as to the best ways and means to use our products . . . not to create new products for you. The expert scientists in your own research and production are best qualified to do this.

This does not mean, however, that we cannot be helpful to you in the development of a new product.

On the contrary, because our technical service is deep-rooted and sincere — and embraces every one at Wyandotte not directly concerned with administration or routine manufacturing — we are ideally equipped to work *with you*.

As a result, such fundamental information as chemical and physical properties, handling and storage practices and precautions, product limitations and other pertinent characteristics are readily accessible to you as a service on Wyandotte products, where they apply. Consultations with science-specialists* on specific areas of a product's application are also available. Application data based on research and industrial experience is obtainable to help you improve your formulations or processes . . . or develop a new product.

So if you have the need for such a service, send us as much data as you can; with the product characteristics you want, and we will be happy to work with you.

For a pictorial presentation of Wyandotte at work, turn the page.

*Chemists, chemical engineers, physicists, etc., whose industrial or research experience qualifies them as specialists in their particular field.

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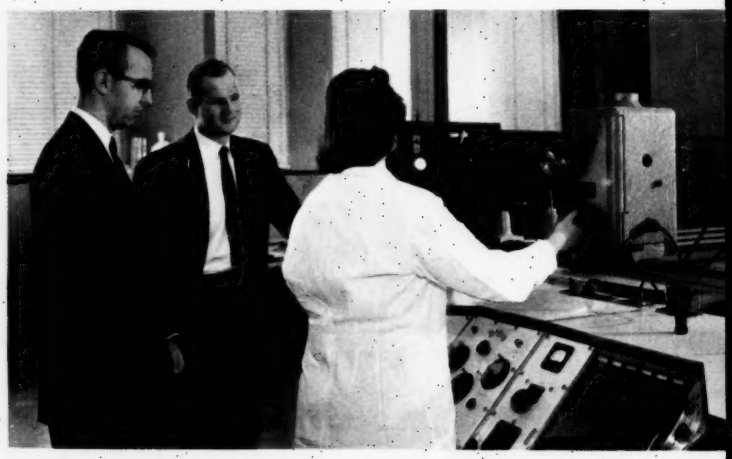
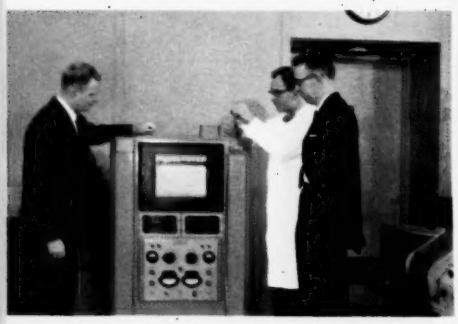
Showing the customer what makes our technical service tick

1 You're about to see a revealing demonstration of creative chemistry at work — on a tour of Wyandotte's modern research center with a technical-service representative.

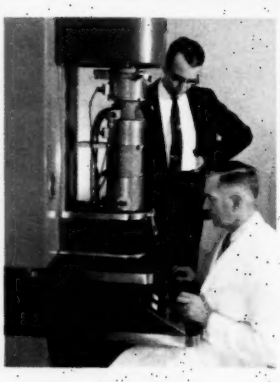


2 In the analytical department, you watch raw-material samples and synthesized compounds coated on carbon electrodes to make spectrogram with emission spectrograph.



3 A versatile Chromotog is at work fathoming the makeup of organic compounds — vaporizing them for analysis and separation; registering the results on a recording chart.

4 You're shown the Wyandotte identification method developed in the physics infrared laboratory for applying IBM punching and sorting techniques to infrared "fingerprints."



5 You see an electron microscope that gives direct magnifications up to 21,000 diameters; displays structural detail for checking particle-size distribution.

6 In the application laboratory, batteries of special equipment test, develop, and improve Wyandotte products; research customer product or processing problems.

7 Research projects begin here, in the research library. Boasting thousands of books and journals, it has facilities for gathering any recorded scientific information.

8 You step into a private office to discuss your product or processing problem with the technical-service man . . . knowing that every tool of modern research is at your disposal.

Wyandotte technical service is backed by the most advanced research facilities in the industry . . . where creative chemists are preparing today for the chemical needs of tomorrow. Research-backed technical service is available to all Wyandotte customers and prospects. If you have a problem that falls within our technological or manufacturing background, check with us . . . our approach is designed to provide answers. *Wyandotte Chemicals Corporation, Michigan Alkali Division, Wyandotte, Mich. Offices in principal cities.*

Wyandotte CHEMICALS

Pacing Progress with Creative Chemistry

Market Newsletter

CHEMICAL WEEK
July 26, 1958

The Middle East crisis—if protracted—will have a walloping impact on chemical and allied product markets (*see also p. 25*).

Likely imminent effects: a reversal of inventory-whittling and short-term buying policies on commodities subject to mobilization needs; a firming of some prices that have been softened by months of lagging consumer demand and excess production capacity.

Some metals have already shown a pronounced price response to the potentially explosive situation; copper and tin have moved higher on world markets. U.S. tin dealers hiked tags ½¢/lb. (to 95¼¢)—and further increases may be coming—following advances registered abroad.

All major primary copper producers are quoting the same price this week, 26½¢/lb. Dual pricing on the primary material ended with Kennecott Copper's adding 1½¢ to its previous 25¢/lb. price to match the Anaconda-initiated increase. (Phelps-Dodge did so earlier.)

An industry-wide uniformity of price was anticipated (*CW Market Newsletter, July 12*). Kennecott made it, reluctantly. Says the company: the increase was made simply to clear up the confusion among consumers, not because of any improved demand.

Some U.S. custom smelters, even as the Marines were landing in Lebanon last week, twice notched prices higher—¼¢/lb. each time—to wind up, at week's end, with a similar-to-producers' tag of 26½¢. Buyers, however, were said to be losing enthusiasm at that price, and this could result in a slight retreat on the part of smelters.

•

The cut in xylene prices, expected momentarily only last week, may be delayed because of the tense international situation. But marketers' hesitation to lower schedules probably will be short-lived.

Among producers, competition is sharpening for customers who haven't already switched to using lower-cost solvents. And, point out trade observers, unless a worldwide blowoff comes, U.S. xylene (and other aromatics) capacity is more than ample to take care of all requirements. Capacity today far exceeds that when World War II and Korean War needs pushed civilian users out of the market.

•

The ammonium nitrate market is in an uproar this week. One indication: dual price schedules for new crop year deliveries still prevail. Ruckus started when a Mississippi co-operative began selling some excess nitrate at discount prices to consumers outside its membership. Escambia Chemical, followed later by Southern Nitrogen and Monsanto, hit back with competitive price lists that brought bulk tags down to the lowest level in years.

Other major producers (including Allied, American Cyanamid, U.S. Steel, Spencer, and Mississippi River Chemical) early this week were still holding to schedules about $5/ton higher than the reduced tags. Chances are, though, most will go along with the lower postings, should be making the move before the coming weekend despite some critical muttering.

"It's a mess, and cutting the price won't sell an extra ton of the material," says one maker, "but we'll have to go along with it. Just another case where tax-free co-ops are beating our brains out."

The new prices, which stand a good chance of spreading, peg August-September shipments at $54/ton (bulk), $60/ton in bags; for October, November and December, $59 in bulk, $65 bagged; January-June '59, $62/ton and $68/ton.

And there's an added gimmick: customers get a further 1% discount on payments made within 15 days.

•

U.S. fluorine-chemicals capacity increased by 3,000 tons/year this week; that's how much United Heckathorn's new plant at Garfield, Utah, will be able to turn out. At least 50% of the slated fluorine-chemicals output will be synthetic cryolite made by a "new process." (There are no process details—patents have been applied for—but the company says it's based on a scavenger fluorine method instead of typical sodium precipitation.)

Half the cryolite output is slated for agricultural chemicals use; the other half will be aimed at the Northwest aluminum industry. The new installation will also turn out ammonium sulfate, silica and a raft of fluorides—aluminum, ammonium, sodium, potassium aluminum.

•

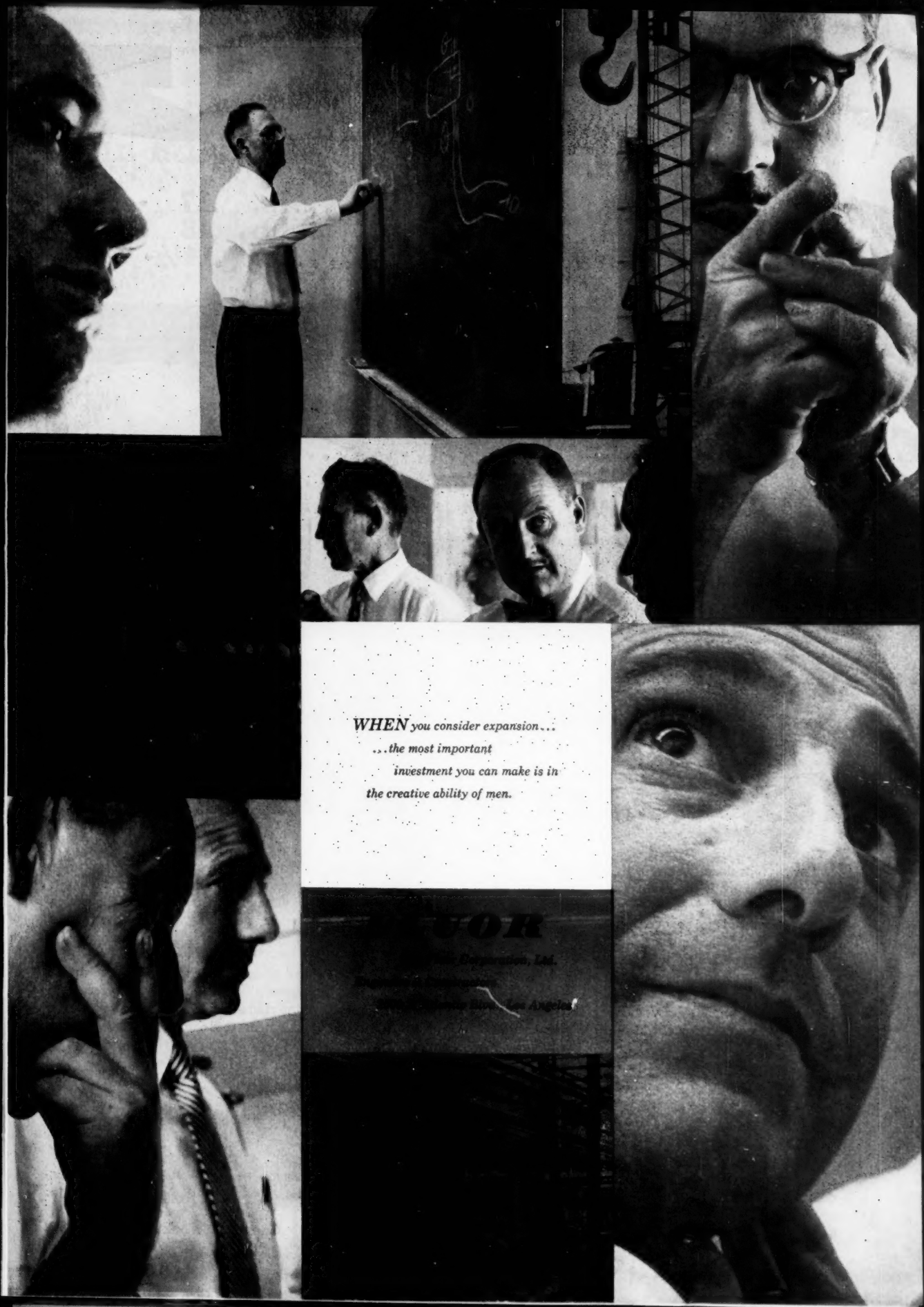
The U.S. Tariff Commission's '57 data on plastics shows that vinyls, as a group, still head the list in production and sales. The preliminary output rundown of the top three groups; vinyl and vinyl copolymer resins, 887 million lbs., with sales of 797 million lbs.; polyethylene, 708 million lbs., sales of 662 million; styrene, 673 million lbs., sales of 647 million.

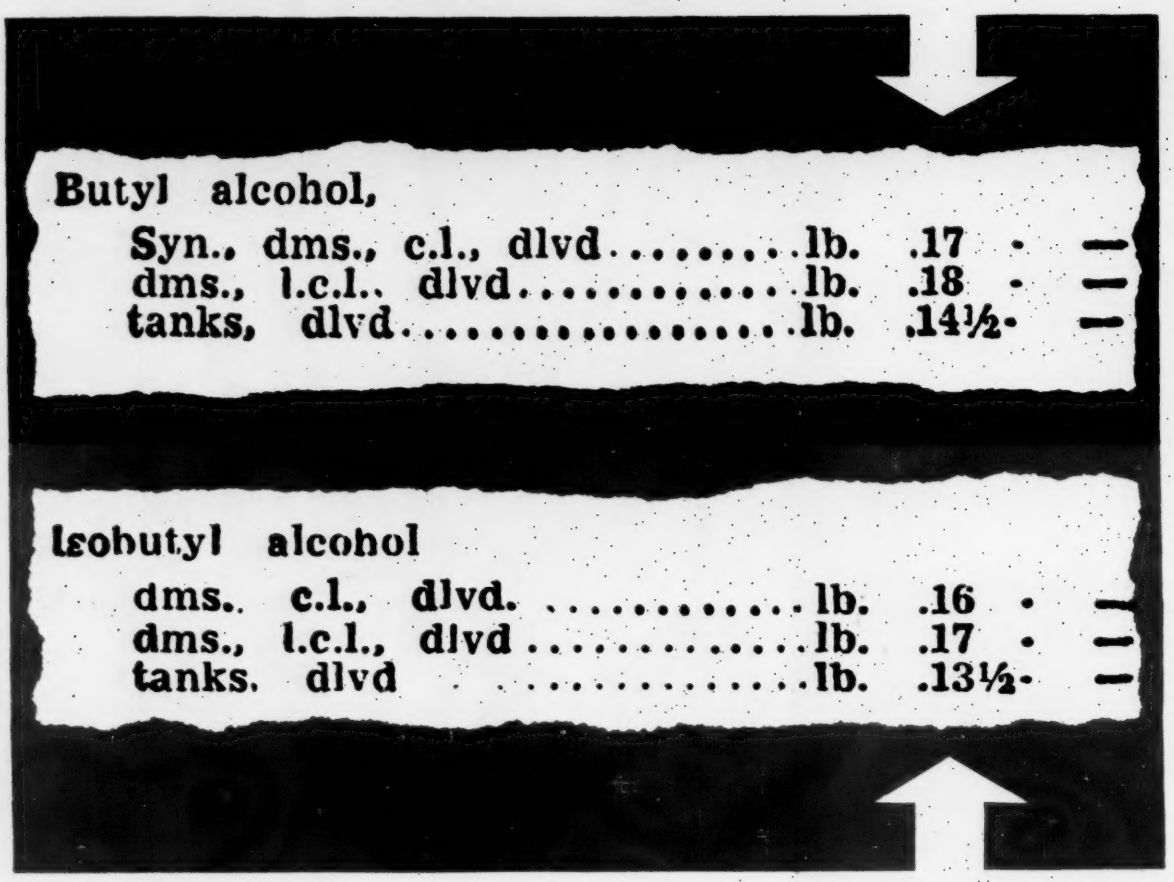
Production of phenolics and other tar acids last year dropped to 532 million lbs. (compared with '56's 563 million), while urea and melamines climbed slightly, to 349 million lbs., from the previous year's 342 million lbs.

SELECTED PRICE CHANGES—WEEK ENDING JULY 21, 1958

	Change	New Price
UP		
Copper chloride, cupric, anhyd., dms., wks.	$0.01	$0.42
Copper chloride, cuprous, dms., wks.	0.011	0.368
Mercury metal, 76-lb./flask, net flask	1.00	229.00
Tin metal (Straits)	0.02125	0.96

All prices per pound unless quantity stated.


WHEN you consider expansion...
...the most important
investment you can make is in
the creative ability of men.



Here's a quick way to cut costs—switch from normal to

isobutyl alcohol

Dollar savings usually start with pennies.

A case in point is the savings users of n-butyl alcohol can realize from the cent-per-pound cost advantage of Eastman isobutyl alcohol over n-butyl alcohol. In tank-car quantities of 10,000 gallons, the lower cost of isobutyl alcohol quickly adds up to a savings of more than $650.

If you are presently using or planning to use n-butyl alcohol as an intermediate or solvent, it will pay you to investigate Eastman isobutyl alcohol. This economical C_4 alcohol is used as a solvent in lacquer formulations and hydraulic fluids and as an intermediate in urea formaldehyde resins, adhesives and 2,4-D and 2,4,5-T esters.

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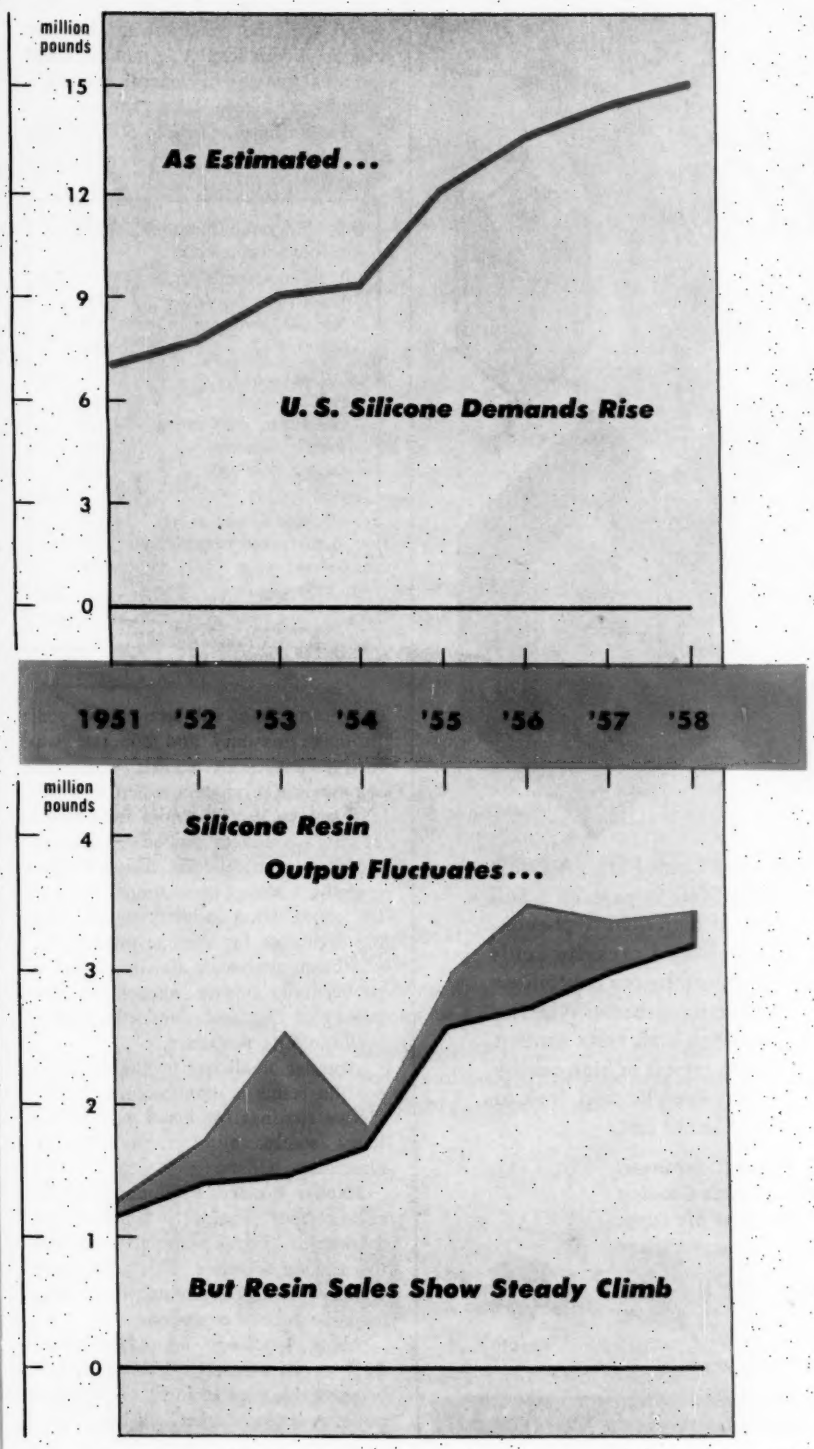
Resin Sales Reflect the Silicone Surge



As go silicone resins sales, so go the sales of the silicone industry. And, as now-printing U.S. Tariff Commission reports show, silicone resins sales are going very well indeed—'57 sales were a record 3 million lbs., prompting industry spokesmen to expect sales to rise to 3.2 million lbs. this year.

As the only officially reported figure of the over-all silicone industry, resin output, generally 20-25% of the total silicone business, is used by market followers as a barometer of the industry's activity. This year, total silicone demand is expected to hit nearly 15 million lbs., somewhat higher than last year's estimated 14.5 million lbs. In '51, 7 million lbs. were consumed.

While sales of silicone products have grown steadily, output—particularly of resins—has fluctuated considerably over past years. The reason, say industry spokesmen, lies in the difficulties of forecasting markets; but it's now evident that correlation of output to sales is improving rapidly.

For example, resin output in '53 hit a high of 2.65 million lbs.—1.18 million lbs. more than sales. Consequently, output was cut back sharply, to 1.85 million lbs. in '54. Although production has since exceeded sales by wide margins—some 0.76 million lbs. in '56, for example—it's obvious that better understanding of markets is bringing output more consistently in line with demand.

Sales Surge: Electrical industry demands have been largely responsible for the growth of silicone resin sales in the past and will lend the main push to the drive toward sales of 3.2 million lbs. in '58. Until the electrical demand really began, resin sales were small—only 1.15 million lbs. in '51.

Of the total volume, close to 2 million lbs. will be channeled into production of insulating materials for heavy-duty electrical equipment—especially those types operating at high temperatures over long periods of time.

Indicative of the silicone resin growth potential in electrical outlets is the increase in total sales of heavy-duty industrial apparatus, which includes generating and transmission

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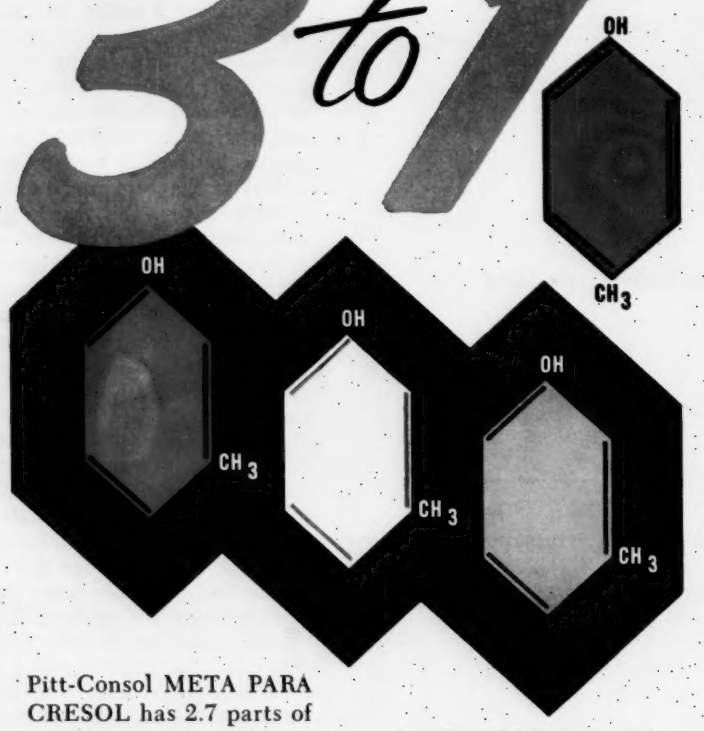

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equipment. Sales amounted to approximately $3.7 billion in '57—a $300-million hike over the $3.4-billion total six years earlier. Although sales of these electrical products are expected to decline this year, silicone producers appear undisturbed. They stress that the trend toward broader use of silicone insulating materials and eventual pickup in general economic activity will keep sales growing.

Water Chaser: Close to 500,000 lbs.

U.S. Silicone Demands, 1958
(estimated million pounds)

Rubber compounds		5.0
Wire, cable insulation	1.0	
Molding, extrusion	1.0	
Others	3.0	
Oils, emulsions		5.0
Polishes, waxes	2.0	
Lubricants, antifoaming	1.0	
Textile finishes	0.7	
Others	1.3	
Resins		3.0
Electrical insulation	2.0	
Masonry water-repellency	0.5	
Others	0.5	
Miscellaneous		2.0
Total		15.0

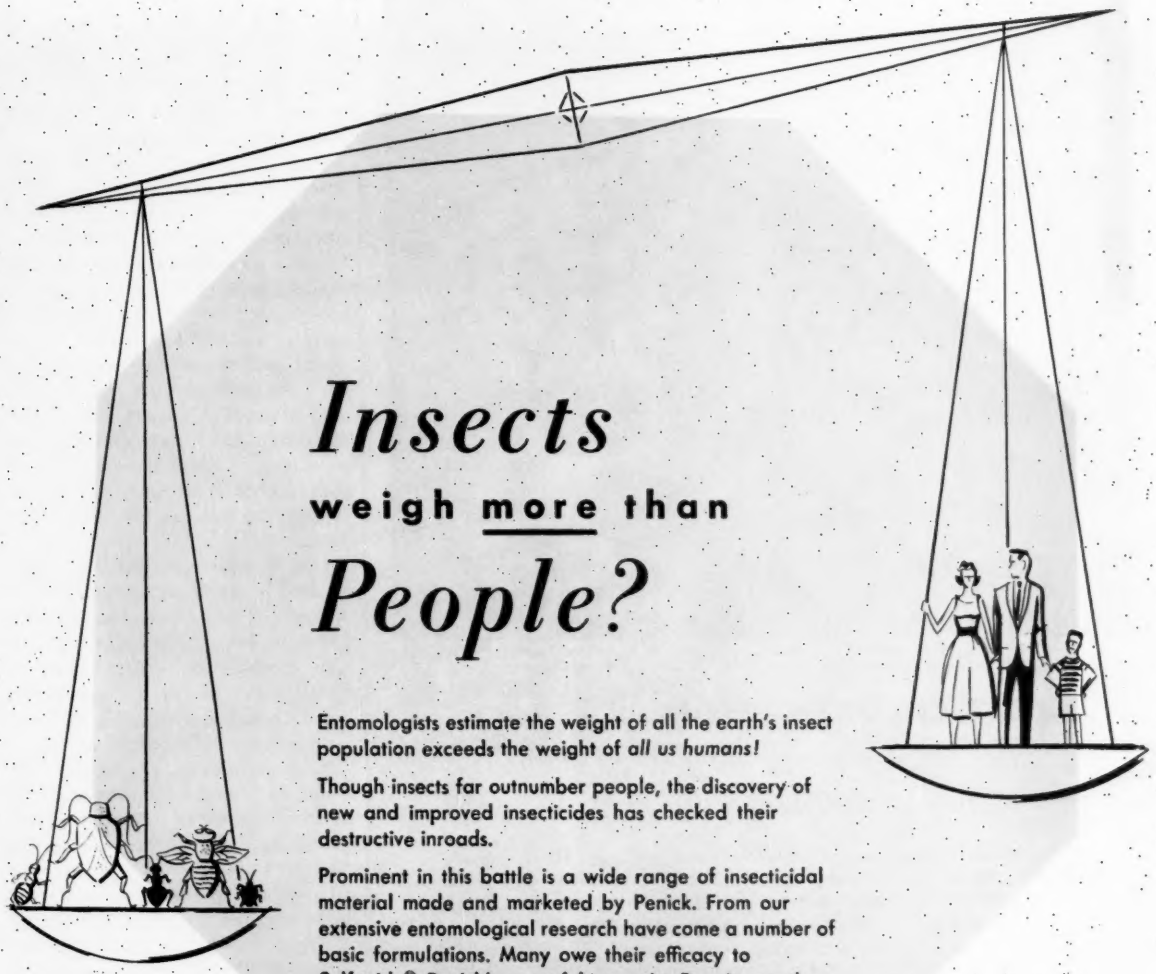
of silicone resins will be used this year to make masonry and concrete water-repellent. This market will gush, say silicone producers, when concrete and cement users become fully aware of the advantages gained by coating masonry with silicone resins. Consequently, a strong promotional drive in the construction industry would reap big dividends for silicone producers.

Silicone resins are also important as rubber-mold release agents, in die-casting of zinc and aluminum, and in shell-molding processes.

Another small but profitable outlet for the resins is manufacture of protective coatings for items such as exhaust stacks, mufflers, motors, incinerators, boilers.

Rubber Bounce: Production of silicone rubber provides a much larger market for silicone materials than does the making of resins. This year, some 5 million lbs. of silicones will be used to make rubber compounds.

About 1 million lbs. of silicones, 20% of all silicone rubber sold, will be used this year to insulate wire and cable. A larger market had been fore-



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cast, but sales of insulated wire and cable have dropped off sharply, will be only $1.3 billion this year, compared with a little less than $1.5 billion in '57 and $1.8 billion in '56.

Rubber for molding and extrusion will also take about 1 million lbs. of silicones. And these rubbers have found acceptance in a host of applications, including diesel-engine gaskets, spark-plug boots, crankshafts, valves, camshafts, aircraft heater ducts, gaskets and sealings. Because many of these products are normally used by the auto industry—now suffering drastic production cutbacks—silicone makers admit that sales of silicone rubber compounds will not be as high this year as had been anticipated.

Oils, Emulsions Spread: Rapidly expanding is use of silicones in production of oils and emulsions; a total of 5 million lbs. of silicones will go into such products this year. Biggest demand is for use in manufacture of various polishes, which will take some 2 million lbs. of silicones in '58.

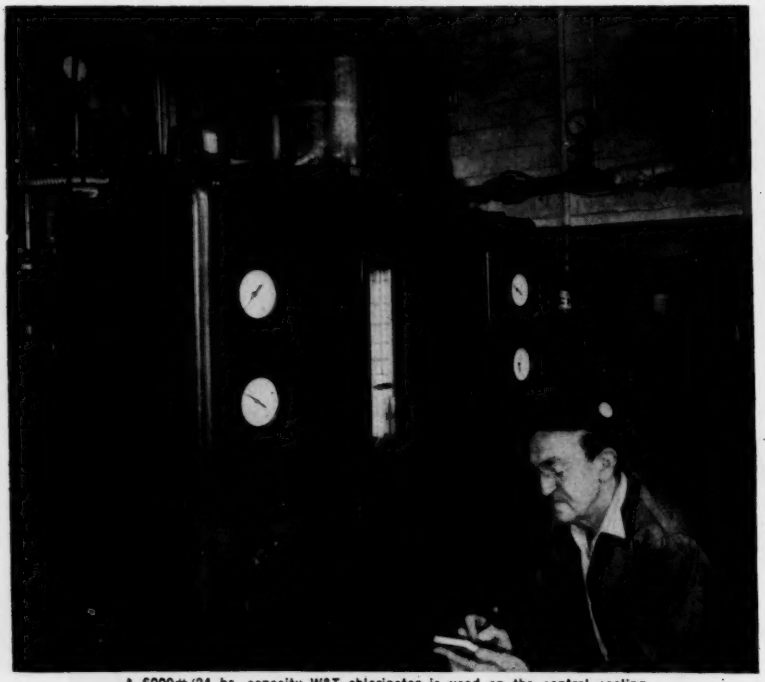
Silicone oils and emulsions have found ready markets as lubricants and antifoaming agents; about 1 million lbs. of silicones will be used here in '58.

Gratifying to silicone producers is the acceptance of silicone oils—as water repellents—by the textile industry. Some 700,000 lbs. of silicones will be used by this group in '58.

Miscellaneous uses of silicones are numerous and difficult to pinpoint accurately; best guesses are that close to 2 million lbs. will be used for medicinal needs, cosmetics, heat-transfer fluids, glass and ceramics, bonding, and other applications.

Three-Way Market: The bulk of the silicone market is supplied by two producers—Dow Corning and General Electric. Union Carbide is a relative newcomer. How big a slice of the total market goes to each is not known. But one estimate indicates that Dow Corning now produces about 60% of all silicones, General Electric makes about 30%, and Union Carbide 10%.

For these producers, the silicone business outlook looks bright; current uses of silicones are legion and many new ones are yet to be developed. With such a broad market base, the industry's relative stability during the current economic pinch is understandable, and its predicted future growth is not unreasonable.



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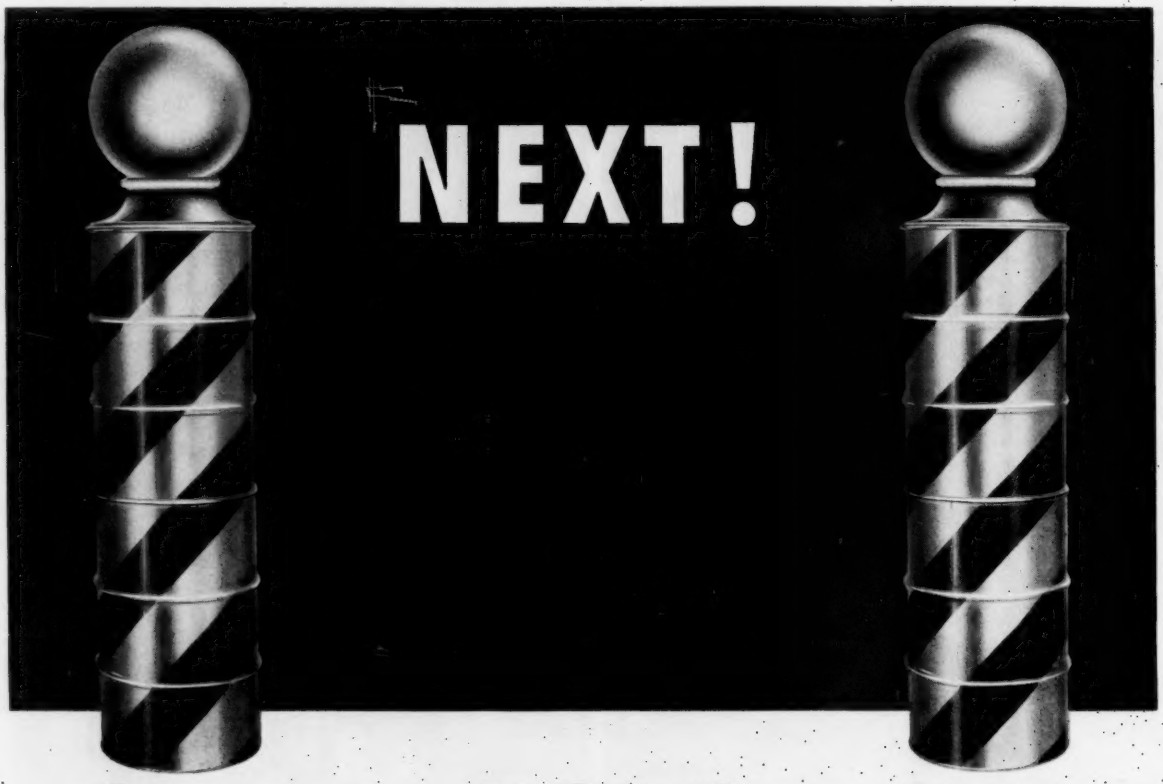

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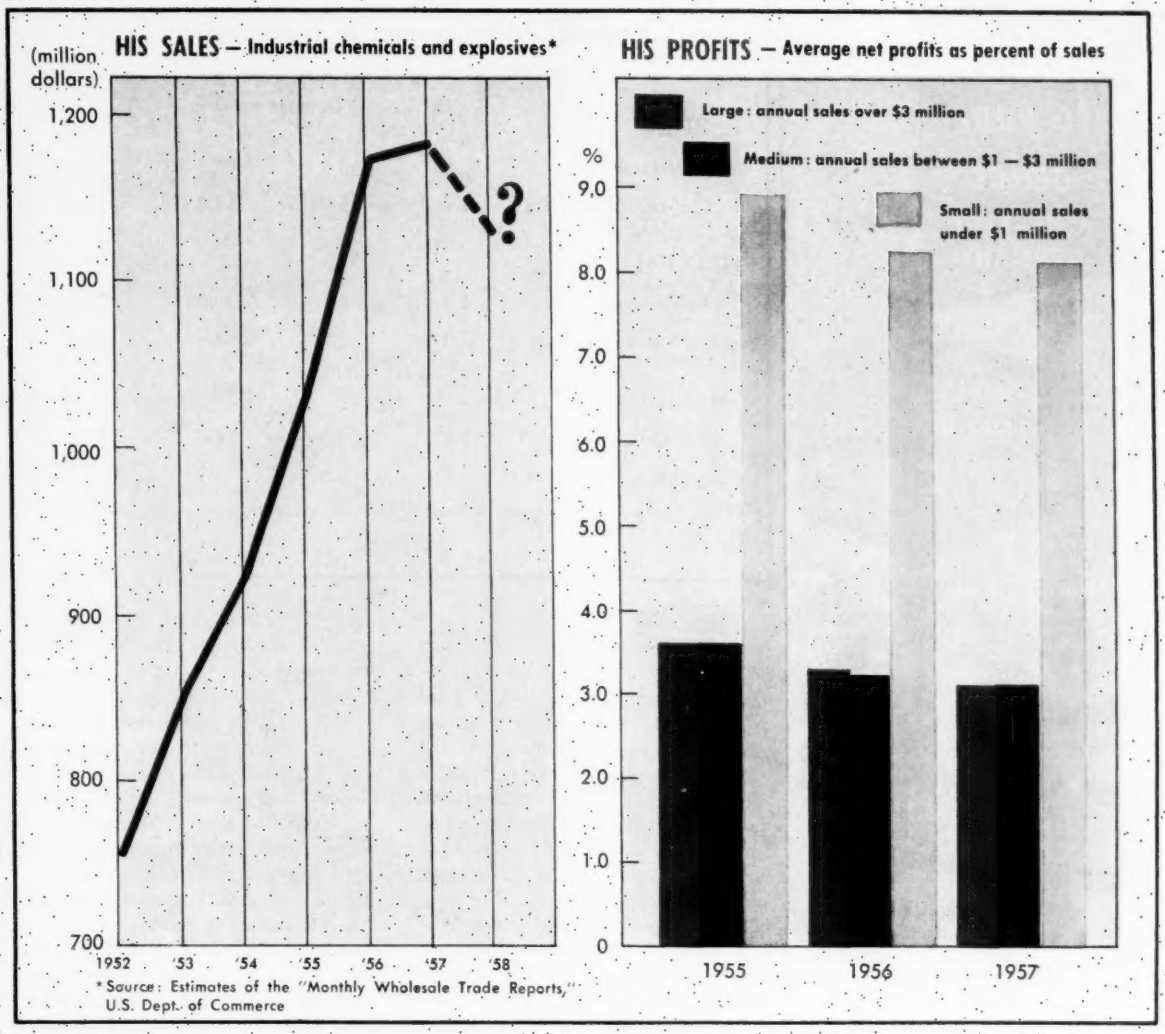

*Source: Estimates of the "Monthly Wholesale Trade Reports," U.S. Dept. of Commerce

Middlemen Look for Year-end Upturn

Which way are the sales and profits of the chemical middlemen — distributors, agents, brokers — moving, as industry copes with the worst recession since '48-'49? The graphs above tell the story: generally downward. But there's some evidence this week that there may be improvement before the year is over.

That, in essence, is what a just-completed *CW* survey* and the latest "Monthly Wholesale Trade Report"** of the U.S. Commerce Dept. indicate. *CW*'s survey is based on 115 replies.

Chemical process management has a big stake in the welfare of the chemical middlemen. About $4 billion worth of drug, chemical and allied products moved through distributors last year. Agents and brokers probably handled another $600 million worth. And that excludes agricultural chemical dealers and non-chemical jobbers (e.g., refrigeration equipment, laundry, beauty supply) who move some chemical lines. In short, middlemen handled a hefty portion (perhaps as much as 20%) of all CPI sales (last year valued at $23.4 billion). It's small wonder, then, that the field sales managers keep close tabs on their distributor outlets.

Sample Picture: The over-all picture is this: the entire drug, chemical and allied products group, which includes paint and varnish wholesalers, was lagging 1.2% behind the Jan.-May '57 sales of $1.70 billion. Last

* *CW*'s questionnaire distinguished between distributors, agents and brokers on this basis: distributors were defined as taking both title to and possession of goods; agents as sometimes taking title but never possession; and broker as taking neither title nor posession. Respondents were classified into the three groups on the basis of the total sales volume handled in each classification. The term "large" refers to middlemen reporting annual transaction volumes of over $3 million; "medium" refers to those with annual volumes between $1-3 million; "small" signifies an annual volume of under $1 million.

** The Commerce Dept.'s "Monthly Wholesale Trade Report" estimates total distributor sales from a statistically representative sample. MWTR chemical data excludes volume handled by agents and brokers and by nonchemical distributors also selling some chemicals.

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Chemical Middlemen: A Measure of Size

	Warehouses	Salesmen	Suppliers	Employees
		(average number)		
LARGE				
Distributors*	12.8	50.0	92.8	193.0
Agents and brokers	2.4	5.9	14.4	21.8
MEDIUM				
Distributors	1.8	6.3	20.0	23.0
Agents and brokers	1.0	2.7	7.4	4.9
SMALL				
Distributors	1.8	3.3	24.6	10.1
Agents and brokers	1.1	1.5	8.2	2.2

**Elimination of one extremely large distributor would adjust figures in this line to 12.2, 35.3, 58.8 and 125.*

year, the group's sales volume was $4.142 billion.

One segment, industrial chemical (including explosives) distributors last year had a record volume of $1.184 billion, a slight increase over '56 (*chart, p. 91*). But in the first five months of '58, they were running 5.8% slower than the '57 pace ($485 vs. $515 million). On the other hand, another middleman group, drug and toiletry jobbers, were faring considerably better. With $1.078 billion on the books at the end of last May, they were 1.9% ahead of the comparable '57 figure.

Varied Optimism: These figures tell only the first part of the story—one that many predict will have a happy ending. For '58, more than half (56.5%) of the distributors reporting in *CW*'s survey expect an increase in sales. Some 29% predict a drop and 14.5% forecast no change. The average expected increase is greater than the average expected decrease (12.8 vs. 11.6%). This data strongly suggests that distributors expect their slump will peter out before year's end.

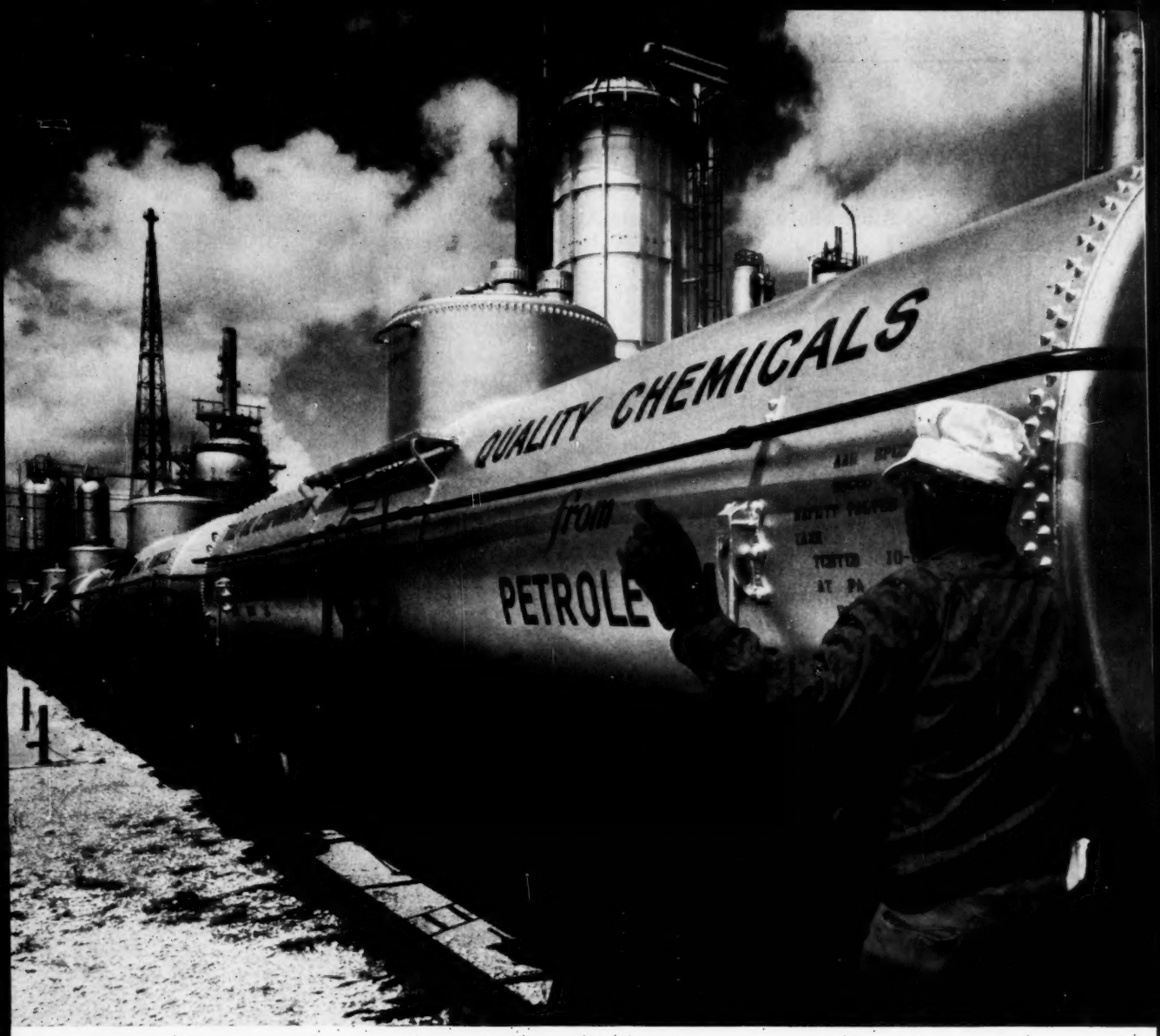
Chemical agents and brokers appear less optimistic. About 46% look for a sales decrease, 26% expect a sales increase, 28% anticipate no change. Among those forecasting a sales boost, optimism is strong. The average expected increase (22%) is 5 percentiles higher than the average decrease predicted by those expecting a slump.

Broker-agents expect sales increases in agricultural, pharmaceutical, plastics, electrical and electronics, food, laundry, dry-cleaning and cleaning compound trades. Chemical middlemen foresee tumbling sales in the leather trades and industries closely tied to metal working (e.g., automobiles, consumer durables).

Incidentally, the chemical middlemen, as in all industry, have been reducing inventories. The MWTR stock/sales ratio (expressed as percent) stood at 120; in May, the figure was 88. Because distributor sales have generally been falling over the same period, a sharp inventory cutback is indicated.

Profit Picture: The average net profit as a percent of sales was slipping for chemical distributors (*chart, p. 91*). Large and medium-size jobbers showed declines of 3-5% from 1956 to '57. Smaller wholesalers fared comparatively better, suffered less than a 1% decrease.

Agent and broker respondents in *CW*'s survey — particularly those with less than $3-million annual sales —also saw net profit ratios skid (*table, p. 94*); the average profit as percent of sales in '57 was 5.9% vs. 6.3% in '56. Large firms, on the other hand, maintained '57 profit



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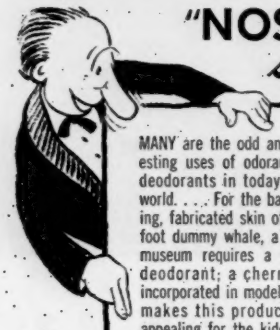

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ratios at the '56 level — 1.9% of sales.

And, on the whole, chemical middlemen take the glum view that net profits for '58 may fall still more. Their expectations:

	Agents and Brokers	Distributors
Expect profit increase in '58	19%	32%
Decrease	52%	36%
No change	29%	32%

An average profit decrease of 22% is forecast by 'pessimistic' distributors. That contrasts sharply with the amount of increase (12%) expected by those looking for a rise.

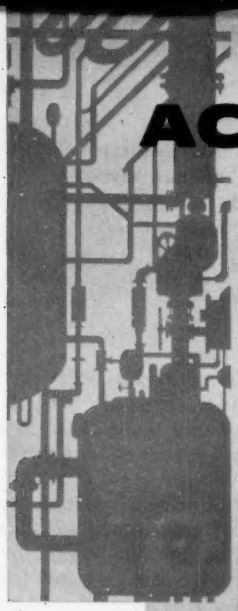
Small distributors are noticeably more optimistic about '58 profits than are the larger wholesalers. Thus, while the average increase expected by large distributors is only 1%, the average increase anticipated by small distributors is 10%. And it's another sign that small distributors operate with higher profit margins than do larger firms. This probably results from large distributors' higher overhead costs, operating technical-service and quality-control laboratories and distributor-owned truck fleets.

	Large Distributors	Small Distributors
Operate technical-service labs.	47%	30%
Have quality control labs.	40%	29%
Own truck fleets	80%	61%

Agents and brokers, as a rule, do not operate laboratories and truck fleets. Only 13% of the survey's agent and broker respondents run technical-service labs and only 6% have quality-control laboratories; 3% maintain their own truck fleets.

High overhead is also reflected in the number of warehouses, suppliers, employees and salesmen of chemical middlemen. Of course, the smaller the volume of sales, the smaller the overall operation (*see table above*).

Markup Margins: Because the commission, rather than resale markup, is their source of income, agents and brokers have markups considerably less than those of distributors. The pattern is seen in this table:



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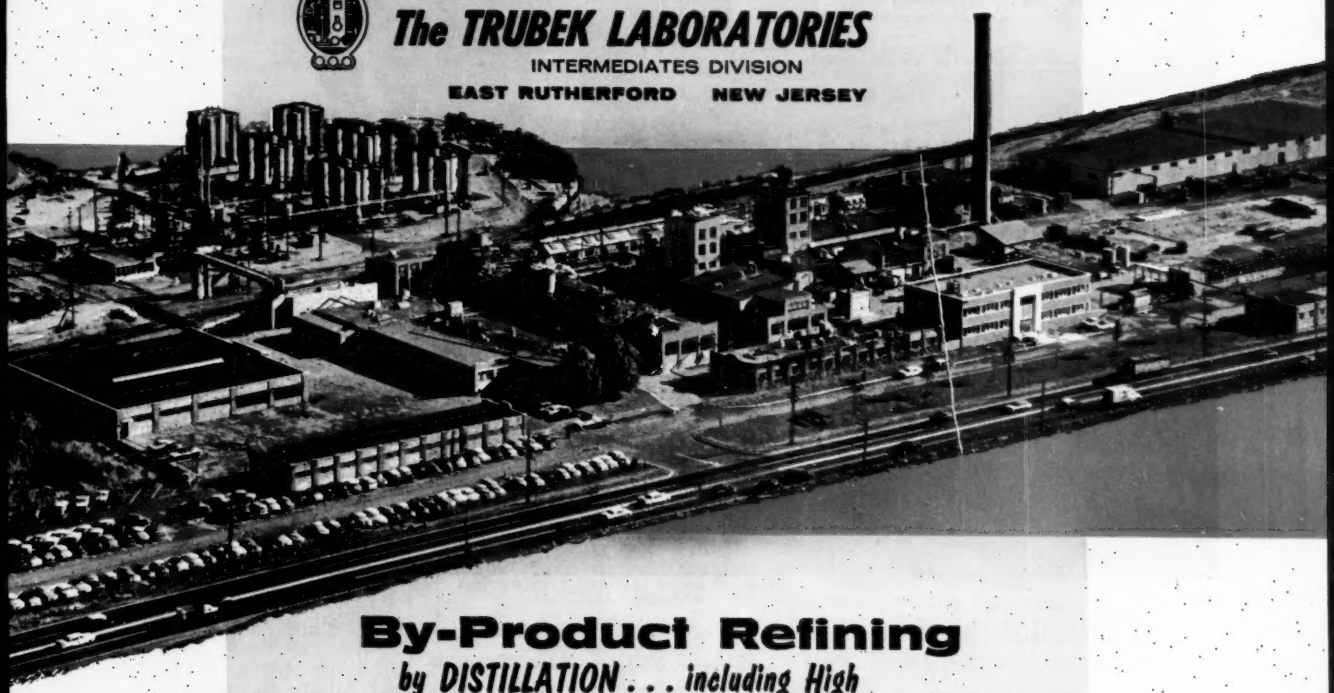

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Percentage of Average Markup	Agents and Brokers	Distributors
Large	4.1%	15.5%
Medium	6.5%	16.8%
Small	8.6%	22.9%

About 65% of all agents and brokers declared average markups of 5% or less; 20% of all distributors told *CW* their average markups were 10% or less.

Are markup margins satisfactory? Distributors are inclined to answer "no." Agents and brokers, on the other hand, are generally pleased with present levels. Some 69% of the large agents, 62% of the medium size, 49% of the small agents term markup margins "unsatisfactory." On the other hand, 75% of the large agents and brokers, 68% of the medium ones, 73% of the small agents believe that present margins are generally "satisfactory."

Margins are particularly "unsatisfactory," say chemical middlemen, on heavy chemicals, solvents, fertilizers and agricultural chemicals, soaps, and most less-carload-lot and less-truckload-lot items.

Credit Outlook: As do the chemical suppliers they serve, chemical middlemen tell of difficulty in collecting bills.

Is It Harder to Collect?	Agents and Brokers	Distributors
	(percent reporting)	
Yes	30%	47%
No	None	13%
No change	70%	40%

Although many industries were cited as tardy in making bill payments, chemical middlemen regard only a half-dozen certain trades as particularly slow-paying.

Summing Up: Faced with skidding profit margins, slower bill payments and, at best, a static sales picture for '58, the chemical and allied products middleman remains, by and large, fairly optimistic about his future. That's because he fulfills two vital roles in distribution — reaching the small-order market and providing rush-order service. Last year, that was a big $4-billion business, with a long-term uptrend.

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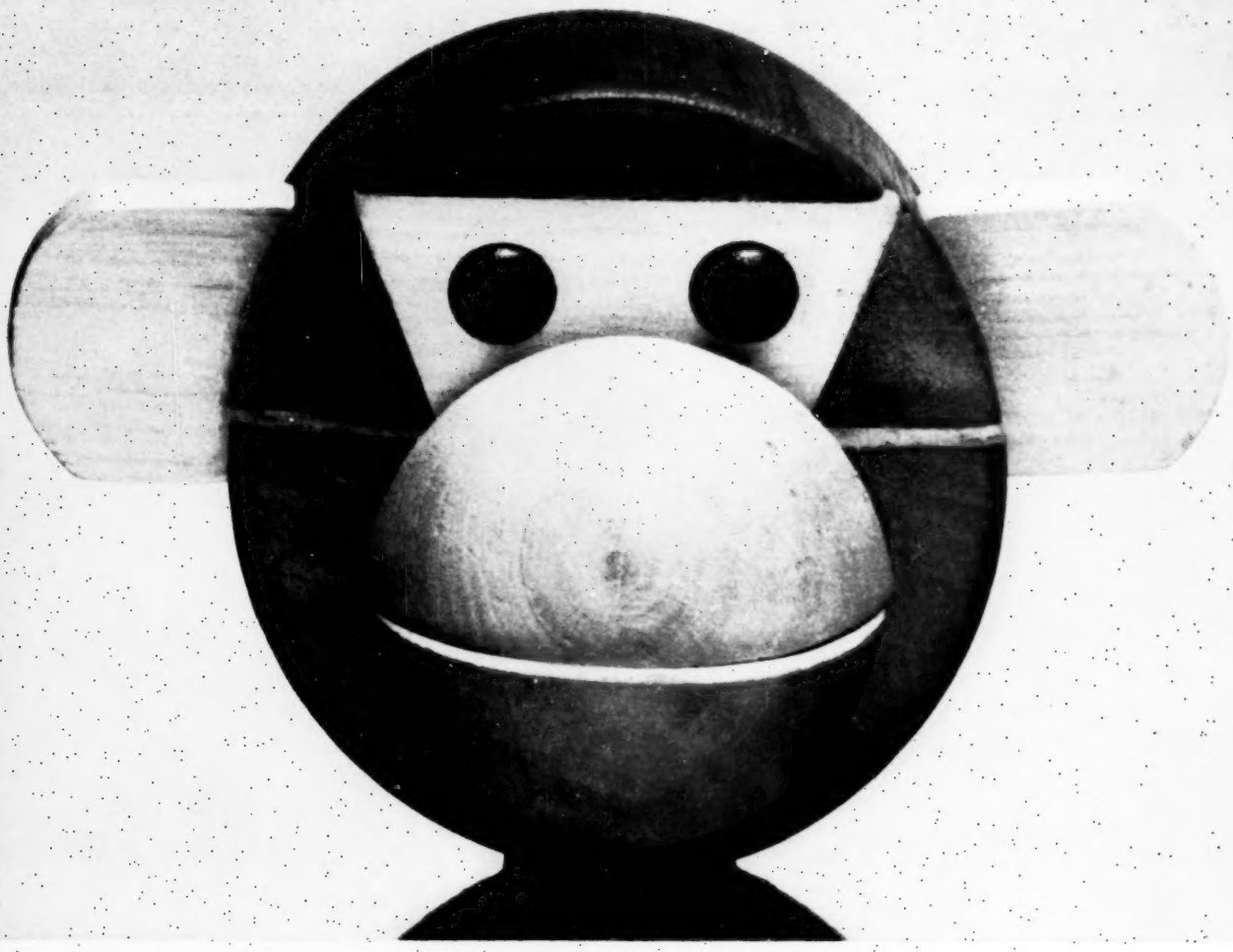

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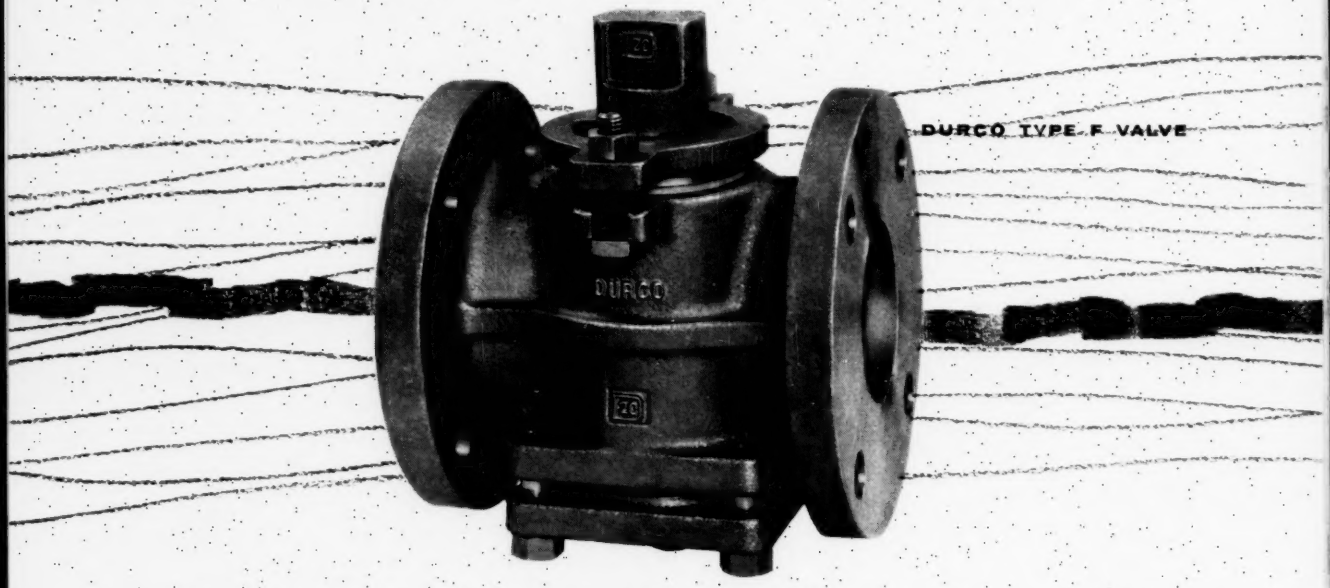

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